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THE AUSTRALIAN SOLDIER.

By Colonel E. G. H. BINGHAM, R.A.

Thursday, 9th May, 1901.

Colonel His Grace the Duke of NORTHUMBERLAND, K.G., A.D.C.,
5th Bn. Northumberland Fusiliers, in the Chair.

AT Suakim in 1885, now over sixteen years ago, I first made the acquaintance of the Australian soldier. It was on the memorable occasion when the first Australian contingent, consisting of a regiment of infantry and a battery of field artillery, was sent from New South Wales to take part in the operations of the Suakim Field Force, for the relief of General Gordon, then beleaguèred at Khartoum. One could not fail to be impressed with the physique and hard-bitten look of the men comprising the contingent, and with the fine horsemanship of the officers and men of the field artillery. Whilst at Suakim I received instructions to proceed to Sydney to organise some additional artillery, which it was

proposed to raise, under the apprehension caused by the Russian scare. Arriving at Sydney in August, 1885, I served for five years as chief instructor and firemaster, and this gave me a good opportunity of observing the soldiers of the Colony of New South Wales. In 1896 I was instructed to proceed to Melbourne to fill the post of staff officer of artillery. I have just returned after five years' tour of duty in Victoria, during which time for a period of six months I acted as A.A.G.

At the request of many brother officers interested in the Australian soldier, I have prepared a short paper based on a personal experience, gained by ten years' close touch with all ranks of the Australian forces.

I will deal with the subject under five principal heads:—

- I.—Staff.
- II.—Regulars.
- III.—Militia.
- IV.—Volunteers.
- V.—South African contingents.

I.—It has been the practice in most of the Australian Colonies to apply to the War Office for the services of officers to fill the position of commandant. The staff has consisted of officers permanently employed in various posts. Many of these officers, retired from the Imperial Army or Navy, have done yeoman service. There being no inducements to retire on pension, officers retain the same appointments for long periods—sometimes extending to sixteen or seventeen years—thus making promotion slow for the junior members of the permanent staff.

II.—The Regulars are principally composed of garrison artillery and submarine miners. New South Wales has one field battery, and Queensland the nucleus of a field battery. In New South Wales a few permanent cavalry and infantry have lately been enlisted.

In 1889 Her late Majesty graciously bestowed on the permanent artillery of the several Colonies of Australia the title of "Royal." It is an honour of which they are justly proud.

The officers are carefully selected. In some Colonies they are not eligible for the permanent force until after a service of two years in the Militia. The professional examinations both on entry and for subsequent promotions are severe. More than half the officers have gone through courses at Woolwich, Shoeburyness, Aldershot, and Okehampton. They have generally passed with credit, a New South Wales officer having taken the first place in the Long Course at Shoeburyness in 1892, a similar position having been taken by a Victorian N.C.O. in 1898.

The men in the ranks are enlisted for a term of five years, after which period, with a good record, they are eligible in most of the Colonies for positions in the police, customs, or other non-clerical appointments under the Government. The men can re-engage if medically fit, and some of the N.C.O.'s are in their fourth period of service. The pay averages 3s. a day for gunners, with a proportionate increase for N.C.O.'s. There is no lack of recruits. Seventy or eighty men may be seen paraded as candidates for seven or eight vacancies. A force so popular

is essentially a *corps d'élite*, and can be worked accordingly. Being of a superior class and more intelligent than the ordinary recruits at home, the colonial gunners are easily instructed. In my experience they always take a keen interest in their profession. The drill and text books in use and the annual courses of company drills and practice are in conformity with the Imperial regulations. The results obtained are most creditable to the force and gratifying to those responsible for their training. The standard for competitive shooting for first class, being laid down at '3, two companies of the Victorian Artillery obtained totals this year of '7 and '6 respectively. The interior economy is carried out under the King's Regulations and Orders for the Army, with a few minor alterations adapted to local conditions.

A fair sprinkling of old British soldiers is found in the ranks. They are useful in maintaining barrack-room discipline, and are able to tell the young soldiers stirring tales of their various campaigns. A steady old gunner in the Royal Victorian Artillery, Garrachty by name, was my groom when I joined my first field battery in 1869. Two other men, both bearing the name of Roberts, gloried in the fact that they had served in campaigns with the present Field-Marshal, the Commander-in-Chief. They were nicknamed by their comrades "General" and "Lord" Roberts respectively, one having been a gunner Royal Artillery and the other a Dublin Fusilier. The Fusilier, fired by the accounts of the gallantry of his old regiment in South Africa, insisted on claiming his discharge and paying his passage to Durban to rejoin his old regiment. Not being a Reservist, and being over fifty years of age, it was explained that he had very little chance of being taken on. The martial spirit was irresistible, and he sailed for South Africa with a great send-off from his comrades. I have not been able to follow his fortunes, but he certainly set a fine example of *esprit de corps* to the younger soldiers.

It is interesting to note that the men are allowed the privilege of wearing plain clothes on furlough, on the weekly half-holiday, and on Sundays after church parade. This privilege is highly appreciated, and never abused. To forfeit it for slackness at drill or other minor offences is one of the greatest punishments.

The men of the Royal Australian Artillery are of fine physique, the average height of the 289 men of the Royal Victorian Artillery this year being 5 feet 10 inches, with an average chest measurement of 39 inches. They are dressed the same as the Royal Artillery.

The small force of Permanent Engineers are all qualified as Submarine Miners. The conditions of enlistment are the same as for the Artillery, with the additional requirement that men must possess a first-class certificate as practical mechanics in a skilled trade. The pay of the Permanent Engineers is 5s. a day. They have charge of all the submarine mines, the cables, electric wires, and other fittings. In all their duties they are skilled experts. The state of order in which the whole plant is maintained would not be surpassed in any similar establishment at home. All the officers and a limited number of the N.C.O.'s have gone through the various courses at Chatham, and have always obtained excellent

certificates. The uniform is that of the Royal Engineers. In addition to their work as submarine miners, the Engineers have charge of all electric search-lights, with their engines and dynamos and the electric plant for the lighting of the forts. In smartness of appearance, as in drill, it is the ambition of the Colonial Corps to be at least equal to the standard at home.

Before leaving the subject of the Regular forces, I may perhaps mention that in New South Wales a field battery was raised in 1888. I had the honour of purchasing the horses and giving the battery its first instructions. Quite recently a 15-pounder equipment was supplied from England, and this battery is now serving in South Africa.

New South Wales possesses a small but well-trained Army Medical Corps, who formed the nucleus of two perfectly equipped field hospitals and three bearer companies, which under the command of their genial and energetic P.M.O., Colonel Williams, now a C.B., and Major Fiaschi, has done excellent work in South Africa.

III.—I turn to the Militia, or, as it is called in New South Wales, the Partially-Paid Force. As it so often happens in the Antipodes, the conditions are the reverse of what obtains at home. Here in England the Militia is a country force and the Volunteers largely an urban force. In Australia we find the Militia in the towns and the Volunteers mostly in the country. In describing the organisation of the Australian military forces, it should be understood that while I am dealing more especially with the Colony of Victoria, in which I have recently been serving, I am practically including all the Australian Colonies, their several Forces having been established on almost identical lines.

The Militia comprises cavalry, field artillery, garrison artillery, field engineers, submarine miners, infantry, and departmental corps. They are enlisted for five years. They serve three with the colours and two with the reserve. It is open to the Militiaman to serve the full term of five years with the colours and to re-engage with the approval of the commanding officer. By far the greater number elect to serve the full term with the colours. It is desired to create a reserve, although as yet it has been found impracticable under existing Regulations. In the Colonies experience has shown that men who have enlisted in the Militia remain in the Service, except when they desire to make a complete change of residence, or for other urgent reasons. In such cases it would probably be as difficult to comply with the reserve conditions as to serve with the colours. Discharges are freely granted, on the recommendation of the commanding officer, recruits being readily obtained to fill the vacancies in the ranks. The training of those Militiamen who leave is not entirely lost to the State. A large number join some other Militia corps or take service in the Volunteers.

In fixing the pay of the Militia forces it has been necessary to have regard to the local conditions. The current rate of wages may be taken at 8s. a day. The Militia are paid at that rate for whole-day parades, or when in camps of exercise. Proportionate rates of pay are authorised

for night drills or half-days. The number of drills which a Militiaman must put in to be reckoned effective is as follows :—

	Pay.
	s. d.
25 night drills of $1\frac{1}{2}$ hours - - - -	2 0
15 half-day drills of 3 hours - - - -	4 0
5 whole-day drills - - - -	8 0

The regulations require that the whole-day parades shall be fixed on public holidays, or when the men are mustered in camp. The maximum which a Militiaman can earn in the year is: in New South Wales, £9 12s.; and in Victoria, £7 10s. In addition to their compulsory drills, men put in many attendances for which they receive no payment. This is specially the case in the Militia Field Artillery. The desire is general to attain to a good standard of efficiency. There is an honourable *esprit de corps* and a wholesome rivalry.

It results from the method of instruction pursued in the Colonies that the Militiaman is more or less under training throughout the year. The advantages are obvious over the English system of instruction, which is concentrated in a service of twenty-eight days, followed by a disbandment extending over a period of eleven months, during which much of the training crammed into a brief interval may be forgotten. The numerous and spacious drill-halls erected by the Government in the principal towns afford valuable facilities for the training of the Militia. The drill-halls contain all necessary adjuncts, such as gun-sheds for the artillery, model rooms for the engineers, and suitable rooms, open at all times, for the purposes of professional reading and study.

In connection with the drill-halls, I should not omit to mention that encouragement is freely given to the athletic clubs formed by the different corps of Militia. These clubs, from time to time, make very creditable displays, which are highly appreciated by the public, and do much to encourage recruiting. The Militia forces are permitted to offer once in the year a social entertainment to their families and friends. This tends to make the Service popular. In addition to the pay, on a liberal scale, the whole cost of uniform and accoutrements is covered by the Government in the form of capitation grants and allowances for effectives. Accoutrements, great-coats, and helmets are supplied directly from the State, and in camp each man provides his own kit and blankets.

The cavalry, consisting of strong regiments of Lancers and Australian Horse, are chiefly found in New South Wales. These corps mustered strong, and presented a highly imposing appearance at the ceremonials connected with the inauguration of the Australian Commonwealth. A squadron of Lancers was sent home two years ago for special training. They volunteered for South Africa, where they have gained golden opinions from the generals under whom they have served.

The Militia Field Artillery possesses an excellent *personnel*, but in point of efficiency the force is handicapped by the want of modern guns

and wagons. The field artillery, being horsed under contract with dray-horses, quite unfit for rapid movement, is reduced to the rôle of position artillery. The force is well drilled and the *esprit de corps* is strong.

The Garrison Artillery Militia is a fine force. The time allowed for drill and practice with the guns mounted for the defence of the harbours is insufficient. Many of the guns used for drill are out of date; but the men, being exceptionally intelligent, acquit themselves well at the annual practice. It may be claimed that they are fully equal to any Artillery Militia at home. If provision were made in Estimates to cover the cost of a fortnight in camp or garrison every year, the instruction so received, combined with the ordinary evening and afternoon drills, would sensibly raise the standard of efficiency. This would also apply to the Field Artillery.

The Engineer Militia form a particularly well-drilled and intelligent body of men. Like the permanent men, nearly all are mechanics. Some are employers in the several trades most directly connected with the practical work of the military engineer. As far as circumstances allow, the Artillery and Engineer Militia are drilled at the various forts they would be detailed to man in the event of war.

The Militia Infantry of Victoria is composed of five battalions of 400 men each, as a peace establishment. They are kept up to strength without difficulty. In war it is contemplated that the strength of battalions should be raised to 800, reliance being placed on the reservists and discharged men rejoining the colours. The Infantry Militia are well trained in musketry and show good records at the target. Their officers are men of standing who take a real interest in their work. The men are well grounded in the use of the rifle and in elementary drills; for which the drill-halls afford ample facilities.

Lord Brassey, when Governor of Victoria, gave a great impetus to the practical training of the infantry by presenting cups for competition in marching and field-firing. The first of these trophies was finally won in 1899; the competition for the second is still going on. The competing companies are required to march at least ten miles. On reaching the selected range they engage an enemy represented by dummies and screens, commencing at a distance of 800 yards, the companies advancing in attack formation. They are halted at unknown distances by the umpires, until they are within 200 yards of the enemy, when they are allowed two minutes' independent firing. Good records have been made, the times of marching being especially creditable.

IV.—The Volunteers of Australia are composed of infantry and mounted infantry. The number of drills at which attendance is compulsory is limited, but efficiency in musketry is insisted upon.

The Infantry Volunteers are chiefly found in N. S. W., Victoria, and Queensland. They are recruited in the various small rural townships, where the population is sufficient to furnish companies or half-companies.

The main body of the Infantry Volunteers of Victoria, bear the designation of Rangers. They have been well organised by Colonel Otter, an ex-marine officer, now in South Africa in command of the Fifth

Victorian Contingent. The Rangers are good shots, of fine physique and of great endurance. Being mostly good horsemen, they could readily be turned into mounted infantry. This corps always tops the list of individual shooting, and for some years had the best figure of merit in the forces.

We have now to deal with a most valuable adjunct to the defence forces of Australia. I refer to the Mounted Infantry Volunteers. This force, which is represented in all the States, consists of men living up-country, all of whom are good riders. A large proportion are what we should call "rough riders"—men who can ride any horse either broken or unbroken. It is a treat to see them riding at full gallop over ground which an ordinary man would take his horse at a walk. Accidents are rare. The mounted infantry have their company headquarters in the townships in the pastoral districts. Each man provides his own horse, saddle, and bridle. The arrangements as to the supply of arms, accoutrements, and uniform are similar to those in the other Auxiliary forces. The mounted infantry go through the prescribed musketry course, and usually put in a considerable number of extra drills. The average shooting at the target is fair. At unknown ranges the results might compare favourably with those obtained in other corps not so much accustomed to life in the bush. The drills are as frequent as circumstances allow. Men think nothing of riding fifteen to twenty miles for a company drill. The hardy and enduring qualities of Australian horses have been conspicuously shown in the war in South Africa. In the rural districts they are never stabled. Horses in Australia are comparatively cheap, and keep costs little. This is an important consideration, and points clearly to Australia as the proper recruiting ground for a large body of mounted infantry for Imperial service. The force would possess all the qualities characteristic of the Australian bushmen, including good horsemanship, self-reliance, experience in the management of horses under service conditions, and the habit of living in a wild country. It would be vain to look for such a combination of qualities in English recruits.

In this connection I may, perhaps, refer to a speech delivered by Lord Brassey in the House of Lords last year, recommending "that the Home Government should concert measures with the Government of the Commonwealth for raising an Imperial Yeomanry in Australia of at least 5,000 men, under engagement to serve in war in the defence of any part of the Empire, the cost to be met by joint contributions from Imperial and Colonial funds." The Marquis of Lansdowne, in reply, while practically in agreement with the suggestion, expressed the view that the initiative should come from the Colonies.

The Federal Parliament is now being opened by H.R.H. the Duke of Cornwall and York. The time has come when effective action might be taken. There is reason to believe that in consideration of a subsidy at the rate of £10 per annum per man, the Imperial Government could retain not 5,000, but 10,000 effective mounted infantry in Australia, ready at a moment's notice to embark on any service. I am confident that officers and men would be willing to go through the training necessary

to make the force to which they belong in all respects effective, and able to sustain the high reputation gained in South Africa. The practical lessons in war which many hundreds of Australians are learning in South Africa should not be lost. On their return to their own country the men now serving in the field would be ready for the defence of the Empire, should the call, which has been so patriotically obeyed, be renewed. It would be a valuable addition to our military resources to have at command a trained body of several thousand men such as have been described. It is hazardous to trust to contingents of practically untrained men. If, through some uncertainty as to the source from which the initiative should proceed no action is taken on either side, the present favourable opportunity may be lost, and an important military resource will have remained neglected, to the disadvantage alike of the mother country, the Commonwealth, and the Empire at large.

It may here be stated that the total force in Australia is 26,000 men, maintained at a cost of £540,000. Of these about 2,000 are Regulars, 14,000 are Militia and 10,000 are Volunteers, the average cost per man being a little over £20 per annum.

V.—I close with some remarks on the contingents which have been sent forth from Australia to South Africa. Here in England you have been watching with mingled feelings of gratitude and admiration their endurance of the fatigues of exhausting marches, and their deeds of prowess on the field of battle. When the war broke out, the Governments of the several Colonies, responding to an irresistible call from the people, promptly cabled home offers of troops for service with the Imperial forces. Without waiting for a reply preparations were begun. When the cablegram was received, accepting the offers of Colonial troops with the caution "infantry preferred," it was determined to send a force consisting of an equal number of infantry and mounted men. In Victoria volunteers were called for from the Rangers and Mounted Infantry, and the full numbers required were immediately forthcoming. In less than three weeks the first contingent embarked for the Cape. As the war proceeded the offer of contingents was renewed and accepted. An intimation having been received that it was desired that mounted men only should be sent, the men selected for the second contingent were drawn from the Mounted Infantry, supplemented by drafts from the Rangers, who were tested for efficiency in riding before being accepted. On 18th January 250 men embarked under the command of Colonel Tom Price, now a C.B.

The patriotic feeling in Australia grew with the increasing demands for loyal co-operation. In January, directly after the embarkation of the second contingent, a third was called for to be composed of bushmen. A Committee of Selection, on which I had the honour of serving, was formed by the Government, composed of two Members of Parliament, the Chief Commissioner of Police, and Rear-Admiral Bridges. No less than 5,000 experienced bushmen having volunteered for service, it was no light task to pick out the best men. A first selection was made of 650 men; the medical, riding, and musketry tests reduced these by

nearly 200. Upon the Committee devolved the invidious task of making a further reduction after all had passed the examinations, and had been assembled in camp. The conduct of these men from the commencement was praiseworthy, and they evinced a willing and cheerful obedience to all orders, universal anxiety being shown to learn their work. No grumbling was heard, no acts of insubordination even of a minor character were committed. Such were the characteristics of a body of men suddenly assembled from every part of a Colony equal in area to the United Kingdom. It is most creditable to all concerned. Time was fully utilised. In the evenings those not on duty would gather round a big fire in camp to hear short lectures given by the Staff officers on scouting, duties in camp, care of horses, method of packing kits, and other practical subjects. These more serious occupations were relieved by songs and recitations by members of the corps. In less than three weeks' time it would have been difficult to trace the identity between the unkempt stock-riders and bushmen and the smart corps of 276 mounted infantry who paraded through the streets of Melbourne on their way to embark for active service.

No sooner had this third contingent been sent off than a request came for further reinforcements of Colonial troops. Once more a Committee of Selection was formed, and so high rose the impulse of patriotic feeling that over 7,000 men presented themselves in Melbourne and in various country centres as Volunteers. Some 800 men were selected and sent down to Melbourne to go through the various tests. As a result, 650 men went into camp. The new force received the designation of Imperial Bushmen, and their conduct and behaviour in camp were, as in the case of their predecessors, in the highest degree exemplary. The conditions were far from favourable. Copious rains reduced the camp to a swamp and the weather was very cold. All, however, recognised that it was a practical training for the hardships which were before them. Every man was cheerful and did his best, and on 1st May, 625 officers and men, with 800 horses, were embarked and sailed for South Africa, under the command of Lieut.-Colonel Kelly, now a C.B. At the beginning of this year, another contingent was asked for, and orders were received to prepare 500 more bushmen. Our preliminary arrangements were much better than on the former occasions. There was no lack of suitable candidates. In less than three days after the first publication of the new call for recruits, more than 6,000 men assembled in the Barrack Square. Of these, 500 were selected, tested, and sent to camp. Within three weeks, orders for the enrolment of 500 more men were received, and as promptly carried into execution. About the middle of February, a fifth contingent, numbering 1,000 men, with 1,200 horses, under the command of Colonel Otter, sailed for the Cape.

The purchase of horses of the right stamp was not an easy task. In Victoria, Inspector Beckwith, of the Police, managed in proper time to get together the required number, at an average price for the first four contingents of about £16.

The good work done by the officials of the Ordnance Stores of all Colonies deserves mention. When the equipment began there was not in store in Victoria a single saddle, bridle, belt, tunic, boot, nor any of the other details that go to make up a soldier's kit for service. It was the same in all the other Colonies. With the assistance of the leading tradespeople and manufacturers, who with their workmen laboured day and night in the most patriotic manner, at the times appointed every detail of kit and equipment was ready and exceedingly well made.

Nearly every township in Victoria has a State school where children receive good liberal education at the expense of the State. In nearly all the principal schools a Cadet Corps is maintained, and boys are drilled and taught to shoot with a small rifle. A large majority of the bushmen and stock-riders had been to these schools, and had been taught to march and shoot. This early training as cadets at school was most useful when they desired to become soldiers of the Empire. Australia has sent over 12,000 fully equipped troops to the Cape.

It has been too readily assumed that high rates of pay, the desire to see a new country, and the ambition to found another English-speaking nation, were the moving causes of the extraordinary rush of young men to enlist for service. As the result of many conversations with men of all ranks, I am convinced that the large majority were influenced by true patriotism and devoted loyalty to the flag of the Empire. The words of a Victorian volunteer, when he said "If we all die for it, that dear old flag must never be pulled down," voiced the universal spirit of the Australian contingents. This sentiment was well expressed in the refrain of a beautiful patriotic song, entitled "Sons of the Southern Sea," written by an Australian lady:—

"If for the Empire men must fall,
Let ours that glory be."

Many, alas, of those who went out in all the pride of manhood to fight for the flag have fallen, and many more have returned to their homes maimed and crippled.

It is time to close this brief narration of the proceedings in Victoria. In all the Colonies the same enthusiasm, the same rush of numbers, the same energy on the part of the Staff to overcome all obstacles and to get ready in as short a time as possible, were displayed.

There is a danger that legislators and civilians may be encouraged to believe that, because the contingents were turned out quickly, and have done so well, there is no necessity for Regular or Militia forces. It must not be forgotten that the work could never have been accomplished without the help of the officers and non-commissioned officers of the permanent staffs. Besides that, all the senior officers and non-commissioned officers of the contingents had been trained to arms from their youth. Without trained leaders, the contingents would have been useless against the enemy. Further, it is important to observe that a force consisting of good horsemen, fair shots, and cool, self-reliant men, was of precisely the stamp and quality required to endure long

marches and great privations in pursuit of an enemy who are always on the run. Such men could better dispense with previous training than average recruits.

If Australia should ever be attacked the invading armies would be composed of tried and well-disciplined troops. They must be met by the trained and disciplined troops of the Commonwealth. Those in power and responsibility must not deceive themselves with the belief that soldiers can be made in a day. Hasty levies—even when the recruits are such as were obtained for the contingents—must have at their backs highly trained soldiers, upon whose rigidity, shooting, and discipline the issues of battle must mainly depend. At the close of ten years' service in Australia it is my duty to sound this note of warning.

It may certainly be claimed for the subject with which I have endeavoured, however imperfectly, to deal in the present paper, that, in consequence of recent events, it possesses a deep interest, not only for the soldier, but also for the statesman. The Colonial troops, who have been fighting side by side with the Regular forces in South Africa, have done noble service to the Empire. Whether the bonds which unite us remain as now the silken threads of mutual gratitude, pride, and affection, or whether some plan of closer federation be adopted, it has been made evident to all the world that in a time of stress and strain the Colonies are able to render powerful aid in the common cause. Who could have anticipated all that has lately occurred? Until the emergency arose, the most sanguine could hardly have looked for the military qualities which have been so conspicuous in contingents not-trained as Regulars, and with no previous experience of war. Still less could it have been anticipated on the part of the mother country that patriotic feelings in the Colonies could be so deep and so universal. There is no precedent for such a manifestation of loyalty to an old flag, as the symbol of a glorious history. Never before had young countries shown that devotion which we have lately witnessed throughout the length and breadth of an Empire on which the sun never sets.

I have paid my tribute to the soldierlike qualities of the Australian forces, and to the noble spirit of patriotism displayed when troubles came in South Africa. I look back upon my years of service in Australia with pride and satisfaction. It has been a high privilege to be employed in military service in a Dependency which, through the manly qualities of its people, has acquired commanding power and influence in the Southern Seas.

The Right Hon. Lord BRASSEY, K.C.B. (late Governor and Commander-in-Chief, Victoria) :—As my name has been prominently mentioned by Colonel Bingham in his able paper, on which I heartily congratulate him, I may perhaps venture to open the discussion. An address such as we have had the privilege of hearing this afternoon is singularly opportune at the present time. It is opportune because the eyes of all are directed with the deepest feelings of interest to the proceedings that are now taking place in Melbourne. The paper is also, as it seems to me, especially opportune at the present time, because we have taken in hand the re-organisation of our Army. We are resolved that it shall be efficient, and adequate to our needs. The Secretary of State for War has lost no time in putting a scheme for the reinforcement of the Army under the consideration of Parliament. A large

reinforcement of the Army is the leading feature of the proposals of the Government. This brings us face to face with the difficulties of recruiting under a voluntary system. The lowering of standards cannot be entertained. Already the number of men in the Army who are not fit to take the field is excessive. Conscription is not available for an Army which is largely, if not mainly, employed on foreign service. I hope it may be adopted for home defence, but for foreign service we must rely on the voluntary system. In the circumstances with which the British Government has to deal, experience seems to show that in order to secure a full supply of recruits of the right stamp and quality, the terms and conditions of the Service must be improved. In an able paper contributed some years ago to the *Nineteenth Century* many valuable suggestions were offered by that distinguished soldier and true friend of the soldier, Lord Roberts. So far as they go we cannot doubt that the adoption of the suggestions made by the present Commander-in-Chief would make the Service more attractive. When, however, all has been done that it is possible to effect in other ways, the fact will remain that in order to secure suitable recruits for the Army in increased and satisfactory numbers, we may find it necessary to raise the pay. The statesman may well hesitate to increase our military expenditure, already sufficiently burdensome. The paper which has been read to us by Colonel Bingham shows that with the high pay which it is necessary to offer to the permanent men in Australia there are compensations. The recruits obtained in Victoria are of a superior character in intelligence and physique, they learn their drill quickly, their discipline is excellent, and every man is fit to take the field. The Budget is not burdened with a heavy charge for immature youths not yet sufficiently seasoned to be effective soldiers. In Australia the permanent force bears a smaller proportion to the whole strength than would, under any plan of organisation, be admissible for the Imperial Army. The Australian permanent men are barely sufficient to man the forts. Our Imperial Standing Army must be relatively larger; it must be sufficient to provide an adequate staff of officers, non-commissioned officers, and trained men to lead the large numbers which I hope we may have in reserve. Our permanent Army, it seems to me, should be essentially a *corps d'élite*, the point of the spear, the leaders of the larger forces which I hope we may have in reserve. In Australia, the training of the Militiamen is continuous throughout the year. In England, our Militia is called out for a training of 28 days, and an interval of 11 months follows with no instruction. Such a system as we adopt in this country does not make for the highest standard of efficiency. On the other hand, the interruption of regular employment for 28 days is practically prohibitory to recruits of that superior class which we should like to see serving in the ranks of the Militia. Vast numbers, who could not leave their regular employment, could put in the drills required in Australia, and they could do even more without grave inconvenience. I venture to express the hope that we may have a Militia, or a Militia Reserve, organised and drilled upon the plan which has been so successful in Australia. I have only, in conclusion, to say that, as an ex-Governor of Victoria, I should be doing less than my duty if I did not express, on behalf of the Government with which I had the honour of being associated, our deep obligation to Colonel Bingham for the excellent service which he rendered.

Colonel J. A. FERGUSON, *p.s.c.* (late Rifle Brigade) :—I did not hear until this morning of this lecture, but I could not resist the temptation of running up from the country to add my humble tribute of admiration to the magnificent manner in which the Australian forces have acquitted themselves in South Africa. It is a most happy circumstance that Colonel Bingham's paper has fallen on the very day when the Commonwealth Parliament is being opened by His Royal Highness the Duke of Cornwall and York. Having served for a few years in one Colony of Australia with the defence forces, I should like to say that nobody who has served with those forces could have expected that the troops from Australia would behave otherwise than they have. It is a great compensation for the sacrifices which the country has made, that one result of the war has been to weld the whole of the forces of the Empire together, and to have elicited a magnificent patriotic feeling from every corner of the Empire. The Australian troops,

in common with our own forces, have learnt invaluable lessons. I was glad to hear the lecturer in his last sentence warn the Australian Colonies against trusting to untrained, hasty levies. I trust that an early Act of the Federated Parliament will combine the various forces in an effective whole, and establish some sound system of training for officers as well as men. Canada has set the example in the matter, and I feel sure that Australasia will not fail to follow the example of Canada. We all knew that the Australians were splendid riders, and many of them are crack shots. I think the suggestion of Imperial Mounted Infantry from the Colonies is a valuable one, but it will be wise perhaps to leave the initiative to the Federal Parliament. We have proved the patriotism of Australia, but it will be far better to let the move come from them, and not from home, in the formation of such a force. It will come no doubt some day. There was just one other remark I wanted to refer to, and that was that the early training in schools was really at the bottom of a great deal of the success which attended the Australian forces. It is what we have been contending for in this country lately, with not too much encouragement, that boys from their youth ought to learn something of military drill. The testimony of Colonel Bingham in his valuable lecture will not, I hope, be lost sight of, that the troops were trained for their work with very great facility owing to their early knowledge of drill in the schools. I am sure we are all very grateful to Colonel Bingham for his interesting lecture, and everybody who loves Australia will join in thanking him most heartily for it.

The Viscount HAMPDEN, G.C.M.G. (late Governor and Commander-in-Chief of New South Wales):—I think we are all very much indebted to Colonel Bingham for his admirable lecture and his clear description to us of the Australian soldier. With regard to the partially-paid forces of New South Wales, to which he alluded, I think it would be an excellent thing if our military authorities would examine the constitution and administration of that force with a view to seeing whether the training of the Militia could not be assimilated to it. I am afraid myself there would be great difficulties in the way of continuous training of our Militiamen at home. However, my principal object in rising was to say that there was one part of the lecture with which I did not entirely agree. I am in sympathy with the proposal, but I am afraid it is not practicable that there should be a subsidy by the British Government of Australian troops. The Australians fought for us admirably, they have given us loyal and devoted service. The reason for that loyalty and devoted service for the time was this, or at all events it was assisted by this, that there was a public feeling in Australia in favour of the war, that is to say, the public in Australia believed that that war was a just and necessary one. They were largely influenced in that view because a great many of their friends who were miners in Johannesburg knew what sort of Government they had there under Mr. Kruger. Now, my Lord, at another time it may be that the Australian people will not be in sympathy with this Government in a foreign war. At any rate, I would support what the last speaker has said. I should say, whatever you do, leave the initiative in this matter to the Australian Government. I should be very sorry to see the British Government—His Majesty's Government—make any proposition of the kind to the Australian Government, but I am sure of this, from my experience of the Australians, that no Australian Government that I have ever known would care to commit itself to an engagement that Australian troops should be at the call of His Majesty's Government in any part of the world at any time.

Colonel A. M. BROOKFIELD (1st Cinque Ports Vol. R.):—I had not intended to make any observations on this occasion. In fact, I only heard of this lecture yesterday, but I think it may perhaps not be uninteresting to this company if I tell them that a short time ago in South Africa I had the honour of having under my command a considerable contingent of Australians, in some more or less obscure operations near Kroonstadt and Lindley, ending with the surrender of General Prinsloo at Fouriesburg, when I commanded a scratch brigade. One of my regiments consisted of 500 Australian Imperial Bushmen, and I do not think I ever saw more satisfactorily mounted men. They were splendid fellows. It would have been quite possible to criticise them from a purely military

standpoint, but finer mounted men for rough-and-ready warfare I do not think it would have been possible to see. They took the veldt literally the day that the horses left the trucks. The horses were all very badly fed. I may say in passing that I do not think the Australian Walers, as we call them, were quite up to the average of the Australian horses that are sent to India, but still they are a very useful stamp of horse. What occurs to me and to almost everyone who has been taking any part in this war is, how we are to profit by its teaching. The first thing almost that occurs to one is, what a pity it is that all this useful irregular force should be disbanded on returning home without the Government having any sort of lien on their services in the future. Look at what immense numbers of Yeomen in this country have become soldiers for the first time in their lives. What a pity it is that we should not be able to collect them together again in case of an emergency and to know where they are to be found. Lord Brassey has alluded to the great Army problem that is busying our statesmen at the present time. One thing, I think, has been abundantly proved, and that is the immense number of useful young men throughout the Empire who, though they will not submit to the ordinary restraint of barrack life, of peace-time discipline, delight in nothing better than coming forward in a real emergency. I think we certainly might profit by that; and, though it is speaking in the teeth of old-soldier prejudices, I do say that I believe in the present day a great deal of that pipe-clay sort of discipline—the sentry-go discipline that we used to admire as boys—is not only unnecessary, but even mischievous. Perhaps the war in South Africa has been of rather a too free-and-easy character to draw sound conclusions from it. It would have been a very different thing if all these rough, raw levies that we sent out had been combating with a highly-trained European force, and perhaps the results might not have been so satisfactory. But I do think we have learnt a great deal, and from no one might we learn more than from some of these Australian Colonies. I consider that the Colonies, including Canada as well, are far ahead of the mother country in their way of dealing with auxiliary or reserve forces. I believe the present composition of the Militia and the Volunteers and the old country Yeomanry at home is utterly out of date; it wants overhauling from top to bottom. Lord Brassey referred to the time devoted to drill. Well, it suits the old Militia force to be drilled for 28 days together. In my humble opinion, 28 days is not a bit too much for anybody attempting to call himself a soldier. Then we have that go-as-you-please method of instruction that obtains in the Volunteers—of young men popping in after their day's work and picking up a little information when they can. I think if we combined parts of these two systems and made the whole as elastic as possible we should do well, but above all we should know where to put our hands upon these thousands of useful citizens who are ready to come forward when they are wanted, and who form very valuable raw material which the Government would be very unwise to neglect. I join in thanking Colonel Bingham for his interesting lecture. I do not think many of us realised till now how much military enthusiasm and efficiency there is in these Australasian Colonies. There is one thing the lecturer did not touch upon. The contingents we saw in Africa were not really homogeneous. The men were all dressed alike and were called Australians, but when you came to talk to the leaders of the different squadrons and so on you found they entertained very different views of each other. One lot would be from New South Wales, another lot called Australians would be in fact Tasmanians, and a third would be mounted riflemen from New Zealand. However, we labelled them all Australians, which was very convenient, at all events. I should like to see homogeneous forces from each of these Colonies, and I think it would give one a better opportunity of judging their value. I think we always must say for the future that in physique and enthusiasm and devoted loyalty to the mother country, they are some of the best material we possess.

Captain Sir JOHN COLOMB, K.C.M.G., M.P. (late R.M.A.):—If I might say just a few words, I should like to emphasise what has fallen from the previous speakers in appreciation of the extremely valuable paper to which we have listened. It is brief and soldier-like, and it tells us just the very things we wanted to

know. There are one or two matters in the paper which are very suggestive at this time. One broad aspect which presses itself upon the mind is this, that as far as the Army scheme goes, as far as the proposals of the Government go at this moment with regard to the Army, they are much more limited in area and scope than thoughts which are called up by this lecture. Because, after all, the Army scheme is, as far as the resolution which is to be discussed is concerned, simply piling up more local forces in the United Kingdom, when the real lesson we have learnt in the last three years is that we are not merely an island, but an Empire, and that the want of our Army, and the military necessity of our Empire, is efficient mobile forces to operate over-sea. When you approach that question you are immediately brought face to face with the fact that in your Colonies you have great dormant power. We have heard that, through the energy of individual colonial efforts and the energy of individual officers of the Army going out to the Colonies, this dormant power in these outlying possessions of ours has produced the most admirable results. I agree also with my friend Colonel Brookfield in thinking that the British Army at the present time, in its ideas of the military necessities of the age, would be greatly improved by a little closer association of our officers with the new spirit in the various Colonies. I think myself we have a great deal to learn from them. Therefore it appears to me that, as far as peace training goes, we have to hit upon some plan by which the elements of the various military forces of the Empire shall be brought together for the purposes of mutual association and interchanging of ideas, and consolidation. And looking at the Empire as it is, I think myself it is a mistake to be concentrating our minds on Aldershot and Salisbury Plain to train our officers in scouting and to instruct our military forces; because the true place, from whichever point of view you look at it, for the peace instruction camp of the Empire is in that South Africa in which we are fighting now. There is only one other point which I wish to emphasise. I think we have sadly neglected this question of horses. Colonel Bingham has spoken of the supply of horses in Australasia. I remember, twenty-two years ago in the theatre of this Institution in one of my papers upon the future of the Empire's defence, I dealt with this very question. I looked this morning at the table I prepared twenty-two years ago. In Australia alone then, according to official returns, there were just under one million horses, which was then regarded a very great number. I now turn up the last report, and find that the number has more than doubled. When you look round the Empire you see enormous natural resources of every sort, and what is wanted—I then declared and declare still—is the organisation of the Empire. We must lay hold of, draw together, and utilise the resources which the enterprise of our fathers secured for us in the Empire. That is the problem. It is not a question of Salisbury Plain or Aldershot; it is the problem of such arrangements as will bring into association the various forces of the Empire, and make useful and available for all the Empire its dormant resources, and to prepare to make active British power when required. The last point is the question of stores, incidentally touched upon by the gallant lecturer. Incidentally it comes up that there were old-pattern guns, and that stores could not be obtained. I do think myself that one of the most important and serious problems of all with regard to the question of military efficiency of the Empire is the question of the production of equipment and distribution of stores. To my mind, it is against all common sense and against all reason that this world-wide State of ours should have to rely upon an island in this part of the Atlantic, and in that island on one or two firms. What we have to do is to make a real beginning in the decentralisation of our productive power of war *matériel* and war equipment. I say that Australasia is the true base for the creation of those things required to equip our forces in the Pacific, by the gradual development and building up of a system of factories in the other hemisphere. Not merely for the necessities of Australia, but for the Imperial forces, this is desirable. If we were engaged in operations in China, for example, we should not have to send and drag everything from England, but in Australia there should be factories not merely for local wants but for general military purposes. I feel extremely strongly on that point, and I should be very grateful if the gallant lecturer would, in his reply, give us a little more information about the question of stores. I think it

would be extremely useful if he would, in his reply, give any information in his possession as to the exact state of facts with regard to equipment and stores in Australia. I desire to know whether I am right or wrong in saying that Australia in one hemisphere has to look to an island in another hemisphere for every single thing connected with the equipment of naval or military forces. Above all things, as we have been talking about military forces, I do trust this war will not produce a false spirit in the Colonies or at home. Whilst there is a glorious spirit and the desire for operating together in military wars, we must always not forget this: that in order to enable British forces to co-operate on any field of strife, the very first thing to do is to secure the sea. Every Colony and every possession should combine to make provision for the security of the sea as the essential preliminary to the consolidation of Imperial strength.

Mr. Justice HODGES:—Perhaps, as one of the few Australians present, it would not be out of place if I said a few words on the paper to which I have listened with so very much pleasure—pleasure to find that my valued friend Colonel Bingham has found the fine, sterling qualities that he describes in the Australian people, proud that my fellow colonists and my fellow subjects possess qualities which not only go to make a man, but which go to make the man that is serviceable to the Empire—the very qualities which you want in men who are situated, as these men are, as sentries in the very outposts of the Empire. I am glad to find in this place, at any rate, what I do not find in every place, for I do find in some parts of what is called this “nice little tight little island” that there are people who, when they hear of an Australian, expect to see a nigger with his boomerang, and who are still ignorant that an Australian is but a name for a Britisher who lives under the Southern Cross; and I am bold to say in this company, or in any company, that they are the most British of the Britishers, the most Imperial of the Imperialists. Yes, I dare say some people would like me to go the whole length, and I will—in the true sense they are the thoroughest-going Jingoos of the Jingoos. I believe the people of this country said, one and all, at the commencement of this business which has brought about so much trouble, “We don’t want to fight,” and so the Australians said. As you said, “We want peace,” we said, “We want peace”; and in the true Jingo meaning we said to the Boer, “We do not want to fight; but if *you* do, well we have got the men, we have got the ships, and we have got the money, too.” That was the spirit in which the Australians entered into that contest. But they said it was in this case to be a true British fight to the finish. It was to be no modern South African substitute. It was not to be a drawn battle on the first round; it was to go on until the issue had been finally determined. Colonel Bingham has alluded, and several speakers have also alluded, to the motives which took the Australians so enthusiastically into this war. As an Australian, I feel a right to say a word or two upon it, as one who has lived his life in touch with all classes of that community. No class in that community is there that I have not endeavoured to keep in close contact with. The loyalty in that community has been powerfully created by two factors. The first is, that most of us, for all the time that we can remember, have spoken of, and thought of, and looked to one person as the one who, for all our time, had presided over the destinies of the British people. We respected her, we loved her, as the most perfect constitutional monarch the world has ever seen. We respected her, we worshipped her, we loved her as the type of not only all that was most perfect in a constitutional monarch, but of all that was grand, of all that was noble, of all that was lovely, of all that was gracious, and of all that was pure in mother, wife, and woman. For all time, as long as we could remember, we had done that. We had looked to her with love. The next factor is, that for some time past there has been a certain amount of wisdom—I hope I am speaking respectfully of the Colonial Office—in the Colonial Office, and they have sent out to our Colonies worthy representatives of the Queen. For sometime we have had Governors worthily representing the great people who sent them out, and ably filling that exalted office. I can tell you confidently, though there are many walks in life in which it is not of the slightest importance whether a person is popular, or whether he is not—mine is one of those, thank God—there is one walk in

life in which it is important that the individual should be popular, and that is in the office of Governor. I am quite sure I have known in the Australian Colonies the tide of loyalty to somewhat rise and fall in accordance with the popularity or otherwise of the person who represented the Crown in that Colony; and we may thank the Empire that we have had such persons as the Earl of Hopetoun as our late Governor, Lord Brassey, and as the Earl of Jersey. There are others whose names I won't mention. But those are two factors which have made the Victorians and the Australians a loyal people. With regard to the facts that made them go into this war, they believed, in the first instance, that the Colonial Office had honestly arrived at the conclusion that their fellow subjects of the Queen had a grievance. At the very first they acted on faith in the Colonial Office. Before the subsequent contingents went out they were satisfied that the Colonial Office was right, and that their fellow subjects had a grievance, and they felt that men were being down-trodden, and badly treated, simply because they were Britishers, because they owed allegiance to the British flag, and those considerations made their enthusiasm an overwhelming passion. They felt it was a fine thing to fight for the glorious woman who so long presided over the Empire. They felt it was a glorious thing to fight for the Empire; but when Queen and Empire and right and justice were all on one side, they, with the blood bred of 1,000 years of freedom running in their veins, were seized with a demon-like determination, and I believe they would have gone on fighting and sending men until there were none but boys left, before they would have given up that fight. As one of them said when he came back, at a big reception held at Queen's Hall:—"I have had a rough time there. I have come back, glad to get back, but I did not want to come back until I had finished the job that I went there to do." After paying my tribute to the bravery of my fellow subjects, or rather, perhaps, vain-gloriously boasting of their power, let me say a word or two on other subjects which have been referred to in the paper, and which I think are of the greatest importance. I think that suggestion of a body of horse in some parts of Australia, or in different parts of Australia, is a very important one, and I hope no question as to which should speak first will stop useful movement being made. Horses cannot be bred in a day. There is not over-much encouragement for the breeding of horses in Australia, and I believe if something of the kind were started, and if that body was formed, it would be an encouragement to breed the very kind of horse that is wanted; and in a little time you would not only have 5,000 horses to work with, but 20,000 which could be used when wanted. I am not talking politics, I am neither on one side nor the other; but I do hope the British people, whether it be here or my own people in Australia, will not lose the opportunity, but will remember that now is the time, when they have had the lesson, when they have been gaining experience of what kind of horse is most suitable, when they can state what horse can go the farthest, and can take the biggest load in a time of war. A body of horse might in a very short time be established there. I do not think it is a question whether Australia will not let its troops go wherever they are wanted. I do not understand them to be Australian troops. It would be an Imperial body of horse in Australia. They would be Imperial troops, which could be taken from Australia because they are Imperial, and removed to any part of the Empire. But oh, do not let any question of etiquette as to who should speak first bar the way to the attainment of so great an end. The other remark made was the importance of good officers being sent out to train the men. My fellow Australians recognise that. We know that men cannot be trained without officers of ability, and we ought to have good officers to train them. So far, to some extent, Australians have recognised that. As the lecturer has told you, he has been some five years in Victoria teaching them—what shall I say?—the proper use of artillery. We had also our Commandant-General, Sir Charles Holled Smith, and before him we had other excellent men. I hope that practice will be continued, and I do hope that, if the home people have any say in the matter of what men go out, they will do their best send us good men in the future like those they have in the past, men that will not only train the soldiers, but will train the officers too.

Colonel KELLY, C.B. (commanding Victorian Contingent of Imperial Bushmen):— I should like to say just a few words in relation to one or two little matters which have cropped up during the reading of the paper, and the remarks which have fallen from the various speakers. You must forgive me if I go astray, as I speak entirely as an amateur soldier and rather an ancient one, I am afraid, who has been at it ever since he was a boy and kept it up continually. I have been in South Africa for about 12 months. The general expression of opinion there with everyone that I came in contact, was that these so-called corps of Australian Bushmen filled a sort of gap not exactly supplied by any other branch of His Majesty's Army. We are a very rough-and-ready body. A remark was made with regard to the different names of the various contingents that arrived in South Africa. That is not altogether our fault. I went out in command of the Victorian Contingent of the Imperial Bushmen, about 630 strong, and I am here as a matter of accident. Unfortunately I was wounded rather severely, and in order to prevent my walking about they sent me for a sea voyage. I am in England two days, and I hope to be in South Africa again within a month. The Imperial Bushmen were made up of contingents from various Colonies. Owing to the exigencies of the transport service, as you are aware, we arrived in different ships, at different times, and at different ports. As we arrived the disembarking officer of the place generally christened the detachment with a new name, and in nearly every case we had to look two or three times before we quite knew our names ourselves. For instance, the New South Wales and Australian Imperial Bushmen were called the "6th I.B."; the contingent I had the honour to command was called the Victoria Imperial Bushmen, but commonly known in Lord Methuen's command, to which we were attached, as the "A.I.R." In yesterday's Honours List two of my officers and myself had the honour of appearing, and we are not all described in the same way there. But these are little matters that will arise and were due principally to the hurried manner in which we were landed. The original idea of making a one complete administrative force was abandoned owing to the exigencies of the service, and we were split up into small bodies. There is one other little matter I should like to refer to. The speakers, the British public, and everybody have been very kind in praising the Australian contingents very highly. We may deserve a portion of it. At any rate we can say this, that owing to the training the men had previously experienced, owing to the class of life they lived, for the particular work they were engaged upon in this war Australia was the best recruiting place in the world. I say we are quite able, either as shooting men or riding men, to do anything a Boer ever did. You have said that we have done many good things. We may have done. We have tried to do our best under all circumstances. But whatever little knowledge we possess, whatever little success has attended our efforts, has been mainly due to those gentlemen of the Imperial Forces who came to the Colonies, and over a long series of years have instructed the force in the Colonies. I should not be doing my duty if I sat here and listened to the paper which has been read and the speakers who have addressed you without bringing forward those officers who have been, I think, rather overlooked. We have got a great amount of praise, but in many cases those men who have laboured hard and incessantly, and who have brought all the skill and knowledge they have learnt in the schools here, coming as they did from high positions in the schools of Great Britain, have not been thanked at all. We have learnt a great deal from them; in fact, what knowledge we possess has been gathered from them. They have also cultivated to a great extent that spirit which has resulted in the popularity of the recruiting for these regiments; and speaking as a member of the military forces of Australia, who has tried to do his best in this African war, when the question of the successes accomplished by the Australians are talked of, we ought not to miss an opportunity of putting in a good word for those men who have laboured in Australia under, in many cases, adverse circumstances. In reference to this trouble in South Africa and the reason advanced by the lecturer for reading his paper, I think that most people in South Africa came to the conclusion that if the Empire enters into another war in the future, a force such as the Mounted Rifle Force now working in South Africa is a necessity. Another most important thing to remember is this. I do not know of

any other nation which has an opportunity of recruiting such a force as we have. If you keep before your minds the fact that this class of force is a necessity, it will be a splendid thing for the Army. The methods by which the force will be raised and such little difficulties will be easily overcome. I am sure that any Army would be glad to have these men again to do the same rough-and-ready work they have accomplished. They have filled a gap which cannot be filled by any other branch of His Majesty's Service, and in that way have been of great use. It has afforded me great pleasure to be here to-day, and to pay that tribute which I have endeavoured to pay to those gentlemen who have done so much for us and the Empire.

The CHAIRMAN (Colonel His Grace the Duke of Northumberland):—It is my pleasant duty now to move a hearty vote of thanks to the lecturer for the very interesting discussion which he has originated, and for the very able paper which he has laid before us. So much has been said upon that paper that I do not think it will be necessary for me to add anything. But there is one matter which I should like to mention, because it has puzzled me a good deal since I have been in this room, and perhaps the lecturer in his reply will touch upon the subject. Something has been said by the speakers to-day of the great advantage of shortening the period of drill for a reserve force, and the method pursued in Australia has been pointed out as one which is likely to be worth considering in this country. I should like to know how in Australia the difficulty of training men in proper habits of discipline is overcome, because my small experience in this country has always been that unless you have men together for a considerable space of time, it is exceedingly difficult to teach them those habits of discipline which are essential to every useful force. People think it is very disgraceful to say that a force is undisciplined. I do not think that is quite fair. Discipline is a matter of custom and habit—it is not a thing which can be learned in a day. It is a habit which men learn from a particular system being steadily applied day after day for a certain length of time. It has always puzzled me how you are really to secure the proper discipline for men in the Reserve Forces unless you get them together for a certain period. I quite admit that recruiting would be far easier—for the Militia, for instance—if the term of the yearly service was shortened, but at the same time I do not see how you are to get over the difficulty I have mentioned. They appear, however, to have got over it in Australia, and we should be very glad to know how they manage it. The lecture has covered two very different fields, and raised two very different questions. One—how far we can rely upon our colonial forces for assistance to this country in time of war; and the other—what lessons we may gain from their system for application here at home. I sincerely trust that from both points of view we shall gain much by this afternoon's proceedings. I wish I could believe with Lord Brassey that increase of pay would have a very great effect in increasing the number of soldiers at home. It has always seemed to me that pay is not much of a consideration to the British soldier or Militiaman, or indeed to any other kind of fighting man in the country. I believe there are a certain number of people in this country who like soldiering even in a barrack square, and those men will join in any case. There is another class who are rather bored with the barrack square, but who love active service, and join for that. There is a third class, who do not appear to take to soldiering at all, and I very much fear that an increase of pay would have very little effect in inducing them to embrace a military life. After all, the soldier is, on the whole, for his class very well paid. He has 5s. or 6s. a week to do what he likes with, and he is clothed and fed and housed, and attended to when he is sick, and is altogether in a better condition than the man of his own class in civil employment. It is perfectly true that he is handicapped under the short service system in not being able to learn a trade, but I do not think that an increase of pay would relieve that difficulty. However, I must not detain you with discussing these matters, but I ask you to pass a very hearty vote of thanks to Colonel Bingham for the extremely interesting paper which he has read to us.

Colonel BINGHAM, in reply, said:—One or two points have been raised by the gentlemen who have spoken on the lecture. Viscount Hampden referred to a subsidy

being given to the proposed corps of Australian Yeomanry. That question I went into a good deal whilst in Australia, and the subsidy was proposed to be given not for the man but for the horse, for, as I said in my paper, every mounted infantryman produces his own horse, his own saddle, and bridle. If by giving him £10 we could induce him to breed a good horse, that horse to be registered for Imperial service, then I think the £10 would be well spent. Colonel Brookfield made a remark about the horses sent to South Africa not being quite as good as the Waters that go to India. They were not of the same stamp at all. They were selected much more with the idea of being a lasting horse of a small standard. The orders given were not to buy horses over 15.3, or under 13.2, to be strong, cobby horses, age from five to nine years. I think Colonel Kelly has answered Sir John Colomb with regard to the different regiments in the various Colonies. Thereby hangs rather a tale, and I think I should be, perhaps, encroaching a great deal too much on your time if I went into it. But it was suggested, and very strongly recommended by all the commandants, that a Federal Regiment should be formed from the whole of Australia, not a detachment from each Colony, but that they should be all brought together, and that the command should devolve upon one of the officers then serving out in Australia, who should take them out and command them. The question raised by Sir John Colomb about the stores and ammunition and so on, is also a very long story, and I am afraid I could not do justice to the subject in a few minutes, in the way I should like. I think you will observe that in this paper I have made few suggestions on any subject; I have merely put down the facts as they stand. The fact is that stores were not present. I do not think I said anything about ammunition, but it has formed the subject of very vast correspondence. My Lord Duke, with regard to your question as to how discipline is maintained in the Australian forces, I think there is one very good answer. First of all, the men are, as I said before, of a much higher class than we get as recruits in England. Another point is that they are brought at once under their sergeants-major for night drills, and taught not only the elements of musketry and foot-drills, but the elements of discipline are instilled into them from the very first. Thirdly, I think that the discipline of the Australians is maintained by the officers putting their whole hearts into it, and knowing their job. I thank you very much indeed.

The following few remarks from Colonel Sir E. T. H. HUTTON, K.C.M.G., C.B., A.D.C., in a letter to the lecturer, are added at his request :—

Unfortunately I am obliged to leave London to-day to fulfil an engagement which will keep me away till Saturday, and I shall consequently be unable to be present. I am the more sorry as I should have liked to have added a few remarks at the discussion, which will follow, and to record anew the admiration I have for my comrades from Australia. In a paper read by me at Aldershot in November 1896, entitled "Our Comrades of Greater Britain" (published afterwards in the *United Service Magazine*), I took occasion to record the valuable military attributes of the Australian troops, and I especially commented upon the splendid qualities of the Australian mounted troops, stating that a Force of such men "would be worth their weight in Westralian gold upon any campaign in which British troops may be engaged." Little did I then think that I should have the unparalleled good fortune of commanding these very men in one of the most difficult campaigns in which British troops have been engaged, and be myself in a position to verify the correctness of the opinions then expressed. I shall always recall with pride and pleasure my experience of the dash and gallantry, the loyalty and discipline, the physical power and the horsemanship of my Australian comrades. They have indeed good reason to be proud of the renown which they have won during the campaign for themselves, for the Australian Commonwealth, and for the British Empire.

VON LÖBELL'S ANNUAL REPORTS ON THE CHANGES AND PROGRESS IN MILITARY MATTERS IN 1900.

Précis by Lieut.-Colonel E. GUNTER, p.s.c. (late East Lancashire Regt.)

PREFACE.

THE XXVII. Volume of this important military publication for 1900, here reviewed, contains 630 pages, the increase being probably due to the greater length of the historical section, which not only deals with the war in South Africa, and the rising in China against the European Allied Powers, but includes an account of the Turko-Grecian campaign of 1897. Moreover, as technical military appliances increase with the progress of discovery and invention, so must that portion of the work dealing with these also expand.

The Editor says in his preface that a desire has been expressed in some quarters to restrict Part I., which gives tables and reports of the chief European Armies, to noting the changes which have taken place in these, instead of reproducing year by year their whole organisation in tabular form, though this idea does not, it appears, meet with universal approval. The space in the JOURNAL being, however, limited, it is thought best to reduce this portion, briefly noting any important changes in the different Armies, arranged alphabetically as heretofore, so as to allow the remarks on tactical and technical progress more room.

The historical portion has been restricted for the same reason, and for those given in the body of the *précis* in brackets, where this is touched on.

A few of the military works brought to notice are mentioned in the literary section, but these are so voluminous that a separate number would be required to do them justice.

Some remarks by the Translator, which seemed in parts called for, are appended as footnotes marked with asterisks.—E. G.

PART I.

AUSTRIA-HUNGARY.

The organisation of the Austrian Army, as sketched in last year's Report, remains unchanged. The re-organisation of the Austro-Hungarian Landwehr has been proceeded with. These are apportioned

to 8 Austrian and 8 Hungarian Militia Districts, the Austrian having 1 or 2 brigades in each district, excepting that of Zara, which has 1 regiment of 4 battalions only. The Hungarian districts comprise uniformly 2 brigades each, but these are composed of 2 regiments each only, so that the Austrian Landwehr districts have 33 regiments of 108 battalions, against the Hungarian 28 regiments of 94 battalions.

The total number of battalions available in peace is 668, and of squadrons 351. There are 39 Austrian Landwehr squadrons, but no Militia artillery. The Hungarian Landwehr have no cavalry or artillery. The Landwehr are under the General Officer Commanding the Territorial District for training, discipline, etc.

Last year portions of the Austrian Landwehr were called out for 4 weeks' training, and the Hungarian for 35 days. Promotion is rather quicker in the Landwehr, subalterns obtaining their companies in about 9 to 11 years, as against 12½ in the Regulars.

The Regular artillery remains as noted in last year's Report. The whole Army is, subject to the Emperor, under the direction of the Chief of the General Staff, who is the coadjutor of the Imperial War Minister.

The War School.*—Several changes have been introduced. Candidates must have at least 3 years' service, and be not over 28 years of age. They undergo an entrance qualifying examination, in which they must show a fair proficiency in one foreign language. The establishment consists of the Permanent Staff and the attached students. A major-general of the General Staff is commandant, with 18 majors and captains of the General Staff as lecturers; 1 major and 6 captains of artillery for that branch, 1 major and 1 captain of cavalry as riding-masters. All these hold their appointments for long periods, and more than one-half cannot be changed at the same time. The course lasts two years, and 50 officers join each term. The course begins in October and terminates in June of the second year, after which, until August, practical exercises in the field have to be satisfactorily performed, in addition to the tactical staff rides in the second year, which last 6 weeks. The artillery officers have 14 days' practical siege works exercise in addition at a modern fortress. There is also a special course for engineer officers. At the end of each course certain officer students are selected for immediate appointment to the General Staff. The others rejoin their regiments until opportunities occur for employing them.

School of Musketry.—In 1900 the following courses of instruction were held at the *Brück* School of Musketry: 3 five-week courses for 100 officers (junior captains and senior lieutenants), which Landwehr and naval officers also attended; a 6-day course of lectures, etc., for 44 commanding officers, and several short courses for officers of the Hungarian Ludovic Academy, and for officer students from the War School, etc.

* This is not like the German War School, but similar to our Staff College.—
TRANSLATOR.

Manceuvres.— From 11th to 15th September, 1900, Imperial Manceuvres were held in Galicia, 2 entire Army Corps and parts of 2 others being employed, besides 3 Austrian and 1 Hungarian Landwehr Infantry Divisions.

BELGIUM.

The question of Army reform is still awaiting the complete report of the Army Committee. The war establishments of 23rd December, 1899, show a strength of 9 Infantry Divisions, no Army Corps being formed, and 2 Cavalry Divisions of 2 brigades of 2 regiments each.

The war establishment of an Infantry Division is as under:—2 brigades infantry, 1 battalion divisional infantry (carabineers), 2 squadrons divisional cavalry, 1 regiment field artillery (8 batteries); 2 infantry and 2 artillery ammunition columns, 1 field company R.E., 1 section field telegraph, 1 detachment R.E. park, 2 field hospitals, 1 hospital train, 1 transport, 1 supply column, 2 provision columns, 1 transport and supply park, and 1 movable remount depôt.

The total war strength would be about 140,000 men, the battalions being about 1,000, and the squadrons about 160 strong; the field batteries 166 and the horse artillery 180 strong, each having 6 guns.

ENGLAND.

The Report deals in twenty-three pages with the organisation of the British Army in 1899 and its subsequent reinforcement, distinguishing carefully temporary from permanent changes; and considering the great complication that has attended these, it does the compiler great credit. That our War Minister should be styled Sir John Brodrick is natural enough. Perhaps if he is not, he ought to be.

The Report recognises that Great Britain can on emergency greatly increase its permanent forces by means of its Volunteers and Colonial troops, and that 3 Army Corps and 3 Cavalry Brigades, comprising a total of over 500,000 men, could be made available for Home Defence in 1900, though only 24,000 "A" Reservists remained over and above the large numbers in South Africa. It notices the permanent formation of Major-General Baden-Powell's South African Constabulary and goes much into detail regarding our recruiting reports, characterising that of the Inspector-General as far too rose-coloured, and says that, when the war in South Africa is over, not only will recruiting for the Line fall off, but it will be impossible to obtain the required number of men for the Militia by voluntary recruitment; still, that the patriotic behaviour of employers of labour in throwing open places to reservists and keeping open those of men called out for Active Service will bear fruit and encourage recruiting.

The Report notices the fact of the embodied services of Militia officers counting as marks towards their competitive examination for Line commissions, and that all infantry and cavalry officers must obtain a Hythe Musketry Certificate before they can be promoted. It gives a minute account of the formation of new camps of exercise and of the

measures taken for the tactical training of the troops in 1900, and gives Lord Wolseley credit for his energy and fearless criticisms. It touches on the Cyclist exercises from London to Brighton under Sir J. F. Maurice, and the issue of the "Cyclist Drill." Under the head "discipline" the Report asserts that owing to the British military prisons being all full to overcrowding, 300 soldiers had to be imprisoned in civil jails.*

The failure of the light field picks and shovels carried by our Infantry, who could make no impression on the rocky ground with them, is commented on.

FRANCE.

The organisation of the French Army remains as reported last year, but a few changes, chiefly increases of establishments by the formation of additional battalions, etc., are noted.

Though no official reports have been published, it is gathered that the French could put 5 Armies in the field, 4 on the Eastern frontier and 1 in the Alpine region. Generals Duchesne, Lucas, Kessler, Négrier, and Zédé are said to have been nominated to command these, which will consist of 4 Army Corps each (excepting the Alpine troops of 2) with General Brugère as Commander-in-Chief.

The strength of the units would be approximately as indicated in last year's Report. The Rifle Battalions of 6 Companies would have 26 officers, 1,500 men, and 40 horses. During 1900, 93 regiments (rather more than half) had their 4th Battalions raised. The 4 Zouave Regiments had raised their 5th Battalions. Two new Colonial Marine Regiments were raised, and the 2 foreign Regiments had their establishments increased, by raising an extra battalion each, so that each now consists of 6 battalions.

The re-organisation of the Artillery is not quite complete, but the abolition of the Corps Artillery is contemplated, and the formation of 4 gun mobile batteries for distribution among the Infantry Brigades of each Division.**

In the Cavalry, 20 selected intelligent, well-educated men are to be specially trained as scouts in each squadron, a proportion being distributed to each of its sections. They are to be especially well-mounted. They are distinguished by a star on the right arm.

The Colonial Troops have now all been placed under the orders of the War Minister. General de Gallifet retired from his position as War Minister after having held office barely a year, in consequence, it is said, of differences in the Cabinet. By his great energy he had already done much. To him is due the rapidity with which the new field gun has been supplied, the improvements in the rifle, many important changes in the regulations, the re-organisation of the General Staff and of the

* The writer is apparently unacquainted with our regulations under this head.—TRANSLATOR.

** It will be remembered that in 1809 Napoleon attached 2 guns to each Infantry Regiment.—TRANSLATOR.

Artillery. He was succeeded by General André, Commanding the 10th Division, originally an Artillery Officer.

Conseil supérieur de la Guerre.—In the early part of July, 1900, General Brugère, Military Governor of Paris, replaced General Jamont, who had differences with the War Minister, as Vice-President of the Council and Chief of the Staff; and Generals Duchesne, Lucas, and Kessler, who commanded Army Corps, were nominated to the Chief Council.

It is in contemplation to arm all Dragoon Regiments with the lance. A new Infantry Drill is being compiled by a Committee, presided over by General Lucas, and composed of Cavalry and Artillery as well as of Infantry officers. One company in each regiment is directed to practise the new drill.

Military Education.—New entrance examination regulations to the *École supérieure de la Guerre* (Staff College) were promulgated in 1900. The Examination consists of a preliminary and a final test, the latter in Paris. Six problems are set in the first on Tactics, Military History, Military Law, and Administration, one German Test and a Field Sketch. At the final written examination a problem was set in each of the following:—Geography, Topography, Fortification. *Viva voce* questions were given in Tactics, Organisation, and German. 23 captains and 57 lieutenants passed this examination.

The École spéciale Militaire.—During the first year all Cadets go through the same curriculum. During the second the Cavalry and Infantry are separated, 520 Cadets are admitted. The lecturers are chosen by the War Minister.

The best German account of the re-organised French Army is that of Colonel Hepke, which is embodied in a volume of 600 pages, and is most exhaustive. It is called *Das französische Heer am Ende des neunzehnten Jahrhunderts*.

GERMAN EMPIRE.

There are but few changes to note in the organisation of the German Army in 1900.

Mounted Rifles.—On 1st October, 1900, 3 squadrons of Mounted Rifles were formed, one attached to the 11th Hussars (VII. Corps) at Wesel, and two attached to the 14th Hussars (XI. Corps) at Langensalza.

The Staff of a III. Bavarian Corps was formed on 1st April, 1900, at Nürnberg. Of this corps the 3rd Division has 1 Brigade and Division Headquarters at Nürnberg, and the other at Bayreuth. Its 6th Division has 1 Brigade and Division Headquarters at Regensburg, and the other at Ingolstadt. The 3rd Cavalry Brigade is quartered at Nürnberg and Bayreuth.

A new Military Map showing the territorial distribution of the Army Corps and Divisions, etc., was published for 1901 by R. Schröder, of Berlin.

The new Code of Military Law, etc., came into force on 1st October, 1900. Each Army Corps has now in its command a Brigade-Division of

3 Batteries of Light Field Howitzers, which is attached to one of its Infantry Divisions.

A "heavy" ration of 6 lbs. oats and 3 lbs. straw per diem is now issued to horses drawing heavy guns at manœuvres.

By an order of the Secretary of State of January, 1900, several more of the better-paid appointments in the Post Office were to be kept open for old soldiers. 6 weeks' courses of training in Field Telegraphy were held in Königsberg, Danzig, Thorn, Posen, Köln, Mainz, Strasburg, and Metz for soldiers. 14 days' practical Field Artillery courses were held, which were attended by Divisional and the senior Brigade Commanders and by Commanding and Field Officers. 2 months' courses were held for Captains and Lieutenants at the School of Musketry at Lechfeld in Bavaria, as well as 5 weeks' courses at Spandau. Courses at the Infantry Instructional Battalion were attended by Captains and Lieutenants. Engineering courses for Commanding Officers of Infantry, which lasted 12 days, were also held.

New regulations for the annual General Staff rides were issued.

Manœuvres.—Imperial Manœuvres on a large scale were held in 1900 (which have been already described in detail in the JOURNAL). Cavalry tactical exercises were held at Alten-Grabow, two Cavalry Divisions with Artillery and Mounted Engineers manœuvring under the direction of Cavalry Inspectors-General. The IV. and XVI. Armies carried out exercises in the attack of fortified defensive positions with blank cartridge, and field firing practices with ball cartridge were also executed.

In accordance with the German Emperor's order to abolish all foreign terms in nomenclature, all the Metz forts are now styled *Feste Kronprinz*, *Feste Haeseler*, etc., instead of Fort. The Sanitary *Detachments* are now Sanitary Companies (answering to British Bearer Companies).

A good epitome of German Army organisation is the *Leitfaden für den Unterricht über Heerwesen auf den Königlichen Kriegsschulen*. 8. Auflage. Berlin, 1900. G. S. Mittler Sohn.

HOLLAND.

A National Defence Union was formed in 1900, which already numbers 13,000 members and has 85 branches. Its object is to promote the universal practice of rifle shooting and gymnastics, in view to the defence of the country, should it be invaded or drawn into war. The War Minister has given the members opportunities for using the rifle ranges of the troops in or near the garrisons.

Rifle practices are to be carried on weekly from May to August, and all young men from the age of 16 to 24 can take part in them, besides, of course, the Reservists and Militiamen on presentation of a certificate that they have undergone the necessary preliminary instruction. No more than 15 rounds are to be fired by any man in one day.

The War Minister has made a grant in aid of 10,000 gulden (£834) in this year's Budget. The men pay for the ammunition, and the Union defrays the expenses of the service.

Short range Morris tube, or similar ranges, are also being established.

ITALY.

No changes are reported in the organisation of this Army.

On 1st April, 1899, the total "rationed" strength was as under:—

Officers and Men.				
Standing Army	{ with the colours	-	2	254,078
	{ on furlough	-	-	503,857
Active Militia	-	-	-	304,587
Territorial Militia	-	-	-	2,106,239
Total				3,168,761

As reported last year, the Standing Army was increased by 10,000 men. The war fighting strength is nearly the same, however, as reported in the JOURNAL for October, 1894.

At the end of January, 1900, Captain Carrara's military cycle was finally approved for the Service. 2 Cyclist Companies took part in the Cavalry Manœuvres.

Officers of Engineers have been sent to Paris to study automobiles, and further trials with these will be made next year. The Alpine troops. —Numerous experiments were made with war balloons and homing pigeons. The photogrammetrical plans made were successful. Between Etna, Sicily, and Malta an optical telegraph has been established. This works well. The distance is 191 miles. The forts, etc., of the Straits of Messina have been connected telegraphically on the wireless system.

Numerous new issues of official regulations, etc., were made in 1900.

The Report gives interesting details regarding the various schools of instruction, which we have not space to transcribe. Progress is evident. The whole Army deplored the untimely death by assassination of their beloved King Umberto, but has entire confidence in his successor, Victor Emmanuel III., who is so distinguished as a scientific soldier.

JAPAN (*From 1898 to 1900 inclusive*).

When the re-organisation of the Japanese Army is completed in accordance with the Imperial decree of 1896 it will consist of 13 Infantry Divisions, 2 Cavalry Brigades, 2 Field Artillery Brigades, 17 Battalions Siege and Garrison Artillery and 1 Railway Battalion, 13 Engineer Battalions. Altogether 156 Infantry Battalions, 51 Squadrons, 114 Batteries, 13 Engineer Battalions, 13 Train Battalions, 17 Garrison Artillery Battalions, and 1 Railway Battalion on a peace footing.

In war the following units are mobilised in addition:—

52 Infantry Battalions, 17 Squadrons, 19 Batteries, 13 Companies Field Engineers, 13 Companies Train from Reserves. 104 Infantry Battalions, 34 Squadrons, 76 Batteries, 26 Companies Field Engineers, 26 Companies Train from Territorial Troops and Militia.

The total war strength would then be :—

Active Army, about	-	-	-	-	228,500
Reserve	-	-	-	-	33,300
Territorial	-	-	-	-	125,600
Total					387,400

Of these, 250,000 were available in December, 1899, for foreign active service.

<i>Composition of an Infantry Division.</i>	2 Brigades=2 Regiments=6 Battalions	} Combatant Troops.
	1 Regiment Cavalry=3 Squadrons	
	1 Field Artillery Regiment=2 Brigade Divisions=6 Batteries of 6 guns	
	1 Battalion Engineers=3 Field Companies with a bridge train	
	6 Ammunition Columns=4 Infantry, 2 Artillery.	
	1 Bearer Company	} Non-com- batants.
	6 Field Hospitals	
	1 Supply Column	
	1 Battalion Train	
	1 Telegraph Detachment	

An Infantry Company=217 rifles, 1 Squadron=120 horses, 1 Battery=6 guns 150 men, 1 Field Company Engineers=220 men. Total strength about 14,000 men. The Imperial Guard and the 1st Division have each a Cavalry and an Artillery Brigade. It is intended to complete 12 Infantry Divisions.

Recruiting and filling up the cadres are carried out on the German system, which has answered well.

There is a Major-General as Chief of the Staff, and the Divisional Staff is organised as in European Armies. The Divisional Commander is usually a Lieut.-General.

In Formosa about 9,000 men are stationed. They are in 3 mixed Brigades of 3 or 4 Battalions, 1 Squadron, and 1 Battery Artillery each.

Mobilisation.—In the China War 5 Divisions mobilised in 17 days, each Division consisting of 13,000 combatants and 8,000 non-combatants.

Rifle practice is carried on throughout the year as follows :—From January to May once or twice a week ; from June to December field-firing once or twice a month. Company Commanders are responsible for the shooting.

The Cavalry is inferior to the Infantry and deficient in knowledge of the use of ground.

In the spring of 1900 new Field Service Regulations were issued, which are, in fact, copied from the German Field Service Regulations of 1894. Careful instructions for embarkations and disembarkations are added.

In 1899 the Autumn Divisional Manœuvres of the 1st Division were preceded by embarkation practice, a mixed Brigade embarking at Yokohama and being conveyed to Tatayama 40 miles off.

The discipline of officers and men is excellent, and the troops upheld in the late Boxer difficulties in China the reputation they had gained in the previous war with that Power.

RUSSIA.

Owing to the China complications, progress in the European forces of Russia as regards new formations, etc., has been slower than usual. The Russian forces are kept on different establishments according to the local requirements. There is the ordinary peace establishment for home stations, the higher peace establishment for frontier troops, and the war establishment. This latter is generally maintained by the greater part of the troops in Asiatic Russia.

According to a trustworthy account, the following was an approximate summary of the total peace strength in 1900 :—

In European Russia and the Caucasus.

	Infantry	Cavalry	Artillery	Engineers	Train and other Services.	Total.
Field Artillery ...	510,000	110,000	82,000	29,000	—	731,000
Reserves ...	64,000	400	9,000	1,000	—	74,400
Fortress Garrisons ...	39,000	—	38,000	4,000	—	81,000
Ersatz (2nd Res.) ...	—	5,700	2,800	—	—	8,500
Local Troops ...	14,000	400	6,000	200	34,000	54,600
Grand Total ...	627,000	116,500	137,800	34,200	34,000	949,500

In Asiatic Russia.

Field Army ...	57,000	14,000	9,000	7,000	—	87,000
Reserves ...	12,000	—	300	—	—	12,300
Fortress Garrisons ...	4,000	—	5,000	600	—	9,600
Local Troops ...	10,000	—	200	—	5,000	15,200
	83,000	14,000	14,500	7,600	5,000	124,100

The Report gives the Corps stations and Military District centres, etc., which space does not admit of reproducing. Many of the changes made in 1900 in the Siberian Corps and the organisation of the troops in the Kwang-tung Peninsula were noted in the JOURNAL for April, 1901, p. 491.

The following are the ages at which Commanding Officers on the active list must compulsorily retire :—

Cavalry Regiments	-	-	-	-	-	56
Infantry	-	-	-	-	-	58
Brigade or District Commander	-	-	-	-	-	60
Divisional Commander	-	-	-	-	-	63
Corps Commander	-	-	-	-	-	67

Many retirements took place in 1900 in consequence.

Efforts are being made to increase and improve the Staff College, the War Schools, and the Cadet Corps, in view of the many vacancies regularly occurring.

A curriculum for Lecturers and Instructors has been laid down. The course lasts 9 months.

The Grand Duke Constantin Constantinowitch has been appointed Director-General of Military Education.

Mobilisation.—The untoward events in China found the Russian Troops in Eastern Asia in a state of transition, as their re-organisation was being proceeded with. The occurrences in Peking in May, 1900, necessitated immediate reinforcements of the few Russian troops in China. 4,000 were sent. By the end of July there were available 16 Battalions, 38 Guns, 6 Sotnias Cavalry, 2 Sapper and 2½ Railway Companies of Engineers. In June the troops of the Amur District and some Cossack Regiments were hastily mobilised, and meanwhile the troops first to hand were hurried forward to oppose the attacks of the Chinese in Manchuria. Three European Brigades of Rifles with their Artillery were called up to the support of the Russians in Eastern Asia. The 4th Siberian Corps furnished reinforcements to the troops in the Far East in July. The main line of the Manchuria Railway, upon which the Chinese hordes had made constant raids, and had broken up in parts, was again in Russian hands by the 2nd September, 1900.

Altogether about 173,000 men, inclusive of the garrisons and the European reinforcements, were eventually assembled on the theatre of war in Eastern Asia.

In October, owing to the great expense of keeping up so large a force, demobilisation began, and the force is being gradually reduced to a peace footing, the European reinforcements being gradually retransported to their proper garrisons.

Though on the whole the mobilisation and reinforcement of the Russian Army in Eastern Asia was a success, several defects in the mobilisation machinery were discovered, which will have to be remedied.

Manœuvres.—The usual Summer and Autumn Manœuvres were held, and the Report details these.

The issue of the new Drill and Tactical Regulations has made continuous progress. The "Instructions for the Combat," a recent issue, is a sort of Tactical Handbook for all arms. It has been tried at manœuvres, and does not meet with universal approval. It is being modified by a committee.

The Felddienst, "Instructions for Field Service," dates from 1899. The most complete account of the Russian Army, its organisation, etc., is to be found in the work by Colonel Gulewitsch, of the Imperial Staff College, *The Armed Strength of Russia*, 3rd Edition, 1900, which is being translated into German; also the shorter *Russia's Military Strength*, according to the most recent Official Information, Lemberg, 1900.

TURKEY.

There are few changes to be reported. Turkey has 7 Army Corps of Nizam or Regular troops, numbering 320 Battalions, 200 Squadrons, 255 Horse, Field, Howitzer, and Mountain Batteries, and 145 Siege and Fortress Artillery Batteries, 36 Companies of Engineers, including Bridging Train, 8 Railway and 5 Telegraph Companies, 24 Companies of Train Troops, with 63 Companies of artificers and workmen. There are 374 Battalions of Redifs (Militia) Infantry, and 666 Battalions of Ilawe (2nd Reserves), besides some Irregulars, 48 Squadrons of Redif Cavalry, besides 266 Squadrons of Kurd Irregular Cavalry. These are nominally affiliated to corps. In addition, there are distributed through the whole kingdom 136 Battalions of Gendarmerie, 200 Squadrons of Mounted Gendarmes. Then the Mustaphi (or Landsturm) are liable to be called out in war only. Two Divisions of these were mustered towards the end of the late war with Greece.

As is well known, the Nizam are splendid soldiers. The Redifs are good troops, and the Ilawe have also proved their value in war.

Every Turk is liable to service, unless unfit, from his 20th to 40th year. He serves 6 years in the Standing Army, of which 3 years with the Colours in the Infantry and 4 in Cavalry or Artillery; then 8 years in the Redifs. The remaining 6 years up to 40 he is enrolled in the Mustaphi (only called out in war). Many exemptions are obtained by money payment, etc. There are two half-battalions of Mounted Infantry on mules. There are, with the Cavalry, 2 squadrons of Camelry. The Field Artillery Brigades are of 2 regiments each, and 1 H. A. Battery. 1 regiment has 2 Brigade-Divisions, each of 3 Batteries. The 2 Field Howitzer Regiments of 2 Brigade-Divisions have also 6 Batteries each. The Mountain Brigade-Divisions have in some instances 4 Batteries. The Batteries have 6 guns and ammunition wagons, some more wagons. A few of the batteries have Q.F. field guns.

The total Strength of Fighting Troops available is:—


Officers	-	-	-	-	19,000
320 Btns. Nizam Infantry (about 700 per Btn.)					224,000
374 „ Redif „ „ „ 750 „					280,500
666 „ Ilawe „ „ „ 1,000 „					666,000
200 Regts. Nizam and Redif Cavalry					
(Squadrons 100 Subalterns)	-	-	-	-	25,000
255 Batts. Field Artillery (6 Guns, 110 men)					28,000
145 Cos. Fortress and Siege Artillery	-	-	-	-	29,000
Technical Troops	-	-	-	-	10,000
Total	-	-	-	-	1,262,500
Irregular Kurdish Cavalry	-	-	-	-	32,000
Tripoli Irregular Cavalry	-	-	-	-	3,000
Infantry	-	-	-	-	10,000
Grand Total	-	-	-	-	1,307,500

In 1900 the blockhouses, which were designed for the defence of the Greek frontier, were completed, and good progress was made with the earthworks round Adrianople and Kirkileseh.

Armament.—The 7·65-millimetre (·301-inch) Mauser* is now issued to the 9 Nizam and 12 Redif Divisions, and to 170 Battalions of the Ilawe Reserves; 220,000 more of these are ordered for the remainder. Until these rifles are available these troops continue armed with the Martini-Henry or Peabody rifles.

When the last ordered supply of ammunition is received from Germany, there will be 500 rounds available for each rifle. Smokeless powder is at present obtained from Germany, but the plant having been now obtained it will shortly be manufactured in Turkey.

At present Q.F. field guns have been ordered from Krupp, but it is hoped these may be made at home shortly, as the 4·7-inch field howitzers and the 2·95-inch mountain guns used in the war with Greece were made in Turkey, and were considered a success.

The  map of Asia Minor, compiled by the officers of the Topographical Section of the French General Staff, is completed, and has for the most part been issued.

PART II.

Reports on the different branches of the Service.

(1) INFANTRY AND COMBINED TACTICS, 1900.

Tactics of the South African War.—The campaign of the British in South Africa is of predominant interest. New weapons and new appliances of war were, however, brought into use in this campaign under such peculiar circumstances that it is only with extreme caution that the value for European warfare of the tactical experience gained, which is here epitomised, can be estimated. The Boers proved themselves a formidable body of troops, admirably mounted for long-lasting effort, but for fighting on foot only. Their performances as crack shots and their skill in the use of ground adapted them especially for defensive fighting. At the same time the engagements in South Africa prove that mere defensive fire can never bring about great successes, and that Militia forces are incapable of carrying out thoroughly the tactical offensive.

Their great mobility and extraordinary shooting powers enabled the Boers to occupy on a wide front extensive positions and to deceive the British as to their strength. It is only by this that we can account for the advantages gained by the Boers by their occupation of advanced positions. Their employment of artillery was undoubtedly correct. Numerically inferior, they avoided the artillery duel and reserved their fire for the attacking infantry.

The fighting method of the British in the early part of the campaign took no account of the possible use by their opponents of long-range

* This is a good rifle, with a cut off, but fitted with clips.—TRANSLATOR.

rifle fire or of the exceptional character of the ground—open country free from cover and an atmosphere so clear that it led to a constant under-estimation of the distances. Yet, with all these advantages to the defence, the loss of the attackers was small: at Magersfontein, 9 per cent.; at Colenso, $5\frac{1}{2}$ per cent. This confirms the theory that, with improved weapons, battles become less bloody. At Stormberg there were $3\frac{1}{2}$ per cent. killed and wounded, but over 25 per cent. prisoners. This is to be accounted for, not by the organisation of a mercenary Army, otherwise it would have been so in former wars waged by British troops, but rather by the exhaustion of the men in the weary long-lasting actions, by the terrible heat, and by the want of water.

The intention to maintain close order as long as possible, and to get as near to the enemy as possible before opening fire, had to be renounced immediately after the first few engagements. The regulations of the Drill-book had to be thrown overboard, and each leader tried to improvise an attack of his own. This led to absence of all system. Even on the line of march the normal formations were given up and troops advanced on a broad front covered by skirmishers.* In the attack thin lines of skirmishers on widely extended fronts were opposed to the broad fronts of the Boers, and all deep formations were dispensed with. This had no evil consequences, for the Boers kept no Reserves in hand and showed themselves very sensitive of any movements of mounted troops threatening their flanks.

In the later stages of the war we see the British infantry under Lord Roberts carrying on a demonstrative frontal attack at long range to give time for the turning movements by cavalry, mounted infantry, horse artillery, and machine guns to take effect. The appearance of these outflanking troops was always the signal for the retirement of the Boers. But the success of these tactics was entirely due to the inactivity of the Boers, who confined themselves to passive defence, and they led to no decisive results, as the Boers always withdrew in good time.

Night Attacks.—These, says the author, are unavoidable, and are applicable at all times either to withdraw from a critical position, or to effect a surprise, to seize a small post (as at Spion Kop), or to pass over a fire-swept zone, that by day would be impassable without terrible loss, in order to gain positions nearer the enemy, whence fire could be resumed at early dawn on the enemy's positions (as at Belmont). The conditions necessary to success are:—1. Thorough Reconnaissance. 2. Early adoption of the intended attack formation in order not to be surprised by hostile fire while deploying. 3. Last, not least, instilling into the minds of all engaged that directly the enemy begins to shoot there is nothing for it but to rush him.

He says that at Stormberg the sudden opening of fire by 1,500 Boers completely paralysed the attackers, that 633 unwounded British were

* The writer has apparently overlooked Secs. 47 and 133 of "Infantry Drill." Had the spirit of its provisions been generally complied with by leaders, not so much blame would have been incurred. —TRANSLATOR.

made prisoners,* though the proportion of killed and wounded was not great.

At Magersfontein the attacking British had no knowledge of the enemy's real positions, and let their heavy columns approach within 400 paces of these before deploying.

All the experience gained points to the impossibility of night attacks on a large scale.

The want of proper *intrenching tools*, taken from the men to lighten their load, was often felt. Portable shields are said to have been made use of.**

Bicycles were not used by the British, but were employed by the Boers for messengers.

Machine Guns have proved useful. The *Quick-firing guns* of small calibre, christened Pom-poms, do not appear to have answered, for they were invented for use against boats from men-of-war, and not against moving men. The British system of *Flag and Lamp Signalling* answered excellently, though certainly the conditions were favourable.***

The necessity for mounted scouts accompanying Infantry in action strongly asserted itself. Infantry patrols were superfluous when good field glasses were at hand.**** Though the cavalry were not conspicuous in their dust-coloured khâki uniform, yet the open ground, smokeless powder, and the good shooting***** of their opponents made their scouting a very difficult task. The bad condition of the horses sent at once up country after a long voyage, and unaccustomed to the rough veldt fare, and want of water, increased these difficulties. The 5th Lancers, who were shut up in Ladysmith, were however acclimatised.

The *British Artillery* suffered from the same disadvantages as regards horses. It was also outranged by the well-concealed and well-served Boer guns. In the early part of the campaign there were no Howitzers. The shrapnel of their field guns was useless against the Boers well sheltered in trenches, because the British Infantry kept back and did not compel the Boer Infantry to take up firing positions.

The most important lessons to be learnt from this campaign as regards the Infantry attack, are that frontal and flank attacks must be well combined and simultaneous, that all piece-meal attacks must be avoided, and that Infantry and Artillery must work *simultaneously* in mutual support. It is only by Infantry advancing at once to effective range that the defender can be compelled to take post for firing.

* It was the utter exhaustion of the men after a long journey and a fatiguing night march, they having been 16 hours under arms.—TRANSLATOR.

** I can nowhere find confirmation of this.—TRANSLATOR.

*** The writer probably means to include the heliograph, though he does not specify this.—TRANSLATOR.

**** Field glasses will not discover hidden men.—TRANSLATOR.

***** The accuracy of the Boer shooting is much disputed by some officers who were much engaged.—TRANSLATOR.

(2) QUESTIONS OF GENERAL INTEREST.

As a result of the experience gained in the South African War, it is recommended that when within effective infantry range, gradual creeping forward should take the place of the forward rush. The half-battalion of the Cornwalls crept forward in this way through the extended lines of the Shropshires and Canadians until within 700 yards of the enemy at Paardeberg, and from thence until within about 80 yards. Similarly at Spion Kop 550 Boers are said to have crept forward gradually (only 320 yards in an hour) with a loss of 35 men, and, supported by their Artillery, to have compelled 2,000 British to retire. No exact confirmation of this is yet to hand. A soldier skilfully creeping forward in this way offers but a small mark; but this method is most exhausting, and hands and knees become painfully swollen in the effort, so that good shooting is impossible. It moreover lengthens the time of the advance, and the direction is difficult, so that it is only rarely applicable. Troops creeping forward in this way become cramped, and are difficult to rouse to the assault. The rapid advance by rushes is easier supervised by the officers. It is a matter of experience.

INDIVIDUAL STATES.

Austria-Hungary.—A new Infantry Drill is pending, founded on the rifle experimental trials at the School of Musketry in Brück-on-the-Leitha from 1896 to 1899. In 1900 only provisional lithographed copies were used, and are published.

As the result of these trials the following principles are given:—

1. At medium and short distances volley firing is inferior to the individual fire of skirmishers.
2. The individual fire of a section (Zug) in extended order is more effective than the volley firing of the same section at close order at medium distances.
3. Even at long range well-trained and practised troops will obtain better results from individual firing than from volley firing.
4. From experiments against a half-battery at from 1,600 to 2,100 paces, it was found that the individual fire of a section extended was as effective as the volley firing of a whole company (3 sections or Züge) in close order.
5. Firing at Artillery in action with Infantry four-deep can be employed with effect.
6. Open file formations must be adopted by the troops intended to carry the attack forward, and, within the zone of effective Artillery and long Infantry fire, sections or half-companies in line or open order on the same alignment will be suitable formations.

It is to be remarked that in the Austrian Army volley firing by small sub-units prevails. The recent experiments have borne out the views in Germany as to the advantage of individual over volley firing.

Imperial Manœuvres were held in Galicia, north of the East Baskaden Mountains (Carpathians). The 1st Army, under command of General Baron von Waldstätten, was composed of the I. and VI. Army Corps (each of 2 Infantry and 1 Landwehr Divisions) and of the 7th Cavalry Division. The 2nd Army of the X and XI. Army Corps and of the 6th Cavalry Division and the 18th Cavalry Brigade under command of General Galgetzy. Each Army had a balloon detachment with 2 spherical war balloons. The Reserves were called in to bring the units up to considerable strength. The supply arrangements were as in war. For example, every man carried 2 reserve rations and a small tin of preserved meat, each horse 2 reserve forage rations. Each Army head-quarters had at its disposal a four-seated motor car and a lighter two-seated one. Each Corps had also a light motor wagon and (excepting the X.) a heavy traction motor.

The opposing Cavalry Divisions were at the commencement of the manœuvres 19 miles apart, and the distance between the head-quarters of each Army was about 35 miles. The frontage occupied by the 1st Army was 50 miles, that of the 2nd Army 38. These manœuvres, though showing the excellent training of the troops* and the skill of their commanders, call for no special remark. The railway organisation was good and this service is worth notice. In 3 days 82,212 officers and men, 6,223 horses, and 320 carriages were entrained from 6 different stations, and were carried home along 3 single-lined railways. Combined manœuvres with the Lower Danube Flotilla were carried out on 28th and 29th August, 1900, and are worth noticing. The Southern Army tried to force the passage of the river defended by the Northern Army. The Southern Force had 5 Battalions, 1 Squadron, 1 Field Battery, 1 Field Company of Engineers, 2 Bridging Trains, 2 Monitors, and 1 Patrol-steamer; the Northern, 1 Battalion Rifles, 1 Squadron, 2 Monitors, and 1 Patrol-steamer. The use of flotillas should be confined to very wide rivers, etc., as otherwise the vessels could make no progress under the fire of superior artillery. If the defender has torpedo-boats an attack could hardly succeed, and in any case the use of patrol-steamers in wide rivers is indispensable.

France.--In September, 1900** manœuvres on a large scale were held in La Beauce, under the direction of General Brugère. Unlike in those of former years, the drill-books were left untouched, and only the orders for the carrying out the manœuvres and a few directions regulating the conduct of the actual fighting were issued. All movements were as much as possible to be directed by signalling. Extensions for battle were to be slowly and methodically carried out, time being allowed for

* The excellent marching of the troops, the good sanitary arrangements and details of the reserve rations, etc., were brought to notice in the *JOURNAL* for January, 1901, p. 95, being epitomised from the *Revue Militaire Suisse*.--TRANSLATOR.

** The programme of the manœuvres in September, 1901, was published in the March, 1901, No. of this *JOURNAL* p. 355. They were designed on a large scale, and promised to be of great interest, which in the result was however chiefly spectacular.--TRANSLATOR.

the preliminary artillery action. The frontage occupied was to be strictly confined to that which was suitable to the troops on the ground who were on a peace footing, and was not to extend to that prescribed for units at full war strength, without special permission from the Director of the manœuvres. No movements were allowed after the manœuvres for the day were over or during the night.

A South Army, composed of the V. and IX. Army Corps and the 5th Cavalry Division, comprising 48 Battalions, 40 Squadrons, and 42 Batteries were placed under General Lucas.

A North Army, composed of the IV. and X. Army Corps and the 1st Cavalry Division (52 battalions, 40 squadrons, 41 batteries) was commanded by General Négrier. A 4-inch howitzer position battery was tried. Every unit engaged was given part of its regimental transport, each company having 1 ammunition wagon, and part of the hospital and supply transport accompanying the head-quarters.

The *General Idea* for the 15th September, and following days was that Paris being invested by the enemy (South Army), a relieving force is on the march from the Loire. A Northern Force is covering the Line of Communications of the besiegers. Before the movements, the advanced troops of the contending forces were 30 kilometres (19 miles) apart. On the 15th both advanced. The South Army had pushed forward a Division as an Advanced Guard for its forces. The reconnaissance was however a failure, and the Director of the manœuvres had to interfere to put the contending forces in the right direction, or they would have passed each other undiscovered by either side. On the evening of the 15th they were only 13 kilometres (8 miles) apart, so that the employment of the Cavalry Divisions as advanced cavalry was impracticable.

The days on which actual collision took place offer but slight interest. A night attack took place on the early morning of the 16th, which was remarkable for the utter absence of reconnoitring by the Cavalry of the defence and for the want of vigilance of the outposts. A field electric light apparatus failed, for though it lit up the point of attack, it vividly betrayed the position of the attacking force. It was only when raised about 5 feet that this defeat was obviated.

On the 18th September, manœuvres against a "marked" enemy were carried out. The South Army, now made up to 4 Army Corps and 1 Cavalry Division, advanced, covered by this Division, and by the IV. Army Corps as advanced guard to the whole force, and followed by the IX. Corps in reserve to make an enveloping attack on the enemy's position. In front of the right wing of the Defensive Force, and about 1,500 metres from the main position, was an advanced position on a frontage of about 4 kilometres ($2\frac{1}{2}$ miles). In a fight between the marked enemy hampered by strict defensive instructions and a strong advanced guard, such as an Army Corps, the inherent defects of advanced positions could hardly be displayed.

According to the Director's instructions, the movements of strong massed reserves, the passage through the lines of guns by the attacking

infantry, and the deployment of the troops destined to the assault opposite the principal point of attack was to have been practised. The Manœuvres closed as usual with a grand parade, march past, etc., the only novelties of which were the advance in line of the whole corps artillery and the delivery of quick-fire opposite the tribune of the President. 15 rounds a minute were fired by each gun with blank cartridge. The whole manœuvres were of a parade nature. The Director often interfered, nominally to see that the programme was adhered to, but in reality also to ensure the simultaneous advance of the whole force in the attack.

The battle training of the Infantry is said to have been deficient. Their excellent marching and the silence with which all movements were performed were, however, praiseworthy. The Cavalry made a less favourable impression, especially as regards its scouting, and, when supported by its Infantry in the fight, scouting was altogether neglected. The massing of guns was attempted, but not entirely with success. The employment of motors for the rapid movement of general and staff officers and for the traction of supplies was practical.

The introduction of meat carts much facilitated supply. For each battalion, each Brigade-Division of field artillery, and each Division of corps artillery a meat cart was provided, which moved with the light baggage. Every man carried 2 days' preserved rations; 2 days' preserved meat are carried with the heavy baggage. In the supply train 4 days' preserved rations per man are carried, and 4 days' meat rations per man are driven along, so that in an Army Corps 8 days' supply per man are carried. The flocks and herds are divided into 2 sections, each section representing 2 days' supply for the force, and the whole being driven in rear of the heavy baggage. Behind the supply train follows the meat supply park with 2 days' meat rations per man. The meat wagons convey the first meat rations to the troops.

The heavy baggage with the first section of the animal train follows the fighting columns at such a distance as would enable it to be reached on halting at the end of each day's march. Then the fresh meat supply in the wagons is distributed for the following day, the animals following them are slaughtered and cut up, and the pieces hung on the hooks with which the wagons are provided. The slaughtered animals are, if possible, replaced by those collected in the country, the meat-supply park not being trenched on if it can be avoided. As the meat wagons follow in the light baggage and meat rations for the following day have already been issued, the troops can always cook their dinners on arrival in camp without waiting for the heavy baggage to come up.

In France no new regulations for the tactical employment of Infantry have been issued. A new Infantry Drill is, however, in contemplation, and a special committee has been sitting to consider this, of which General Lucas is president. Its propositions are being provisionally tried, one infantry regiment in each Army Corps being entrusted with this duty. In the manœuvres of 1900 the endurance of the soldiers under hardships was remarkable. The quiet regularity with which all move-

ments were executed was recognised, the troops being thoroughly trained to move by signal. The pronounced offensive spirit, the "forward" impulse, led often to want of proper reconnaissance, which resulted in frequent surprises. Thorough preparatory fire was not altogether apparent, nor was mutual support by lateral bodies. Great depth and delay in deployment characterised the movements, the attempt at simultaneous attack being a great feature. All this may be set down to manœuvre habits, for the regulations are emphatic as to the necessity for thorough preparation by fire.

General Banual, a member of the Infantry Drill Committee, has published his views, formed while he was an active regimental commander.

He emphasises the individual and methodical training of each man, demands that all exercises shall be suited to battle requirements, rejects the view that victory depends on the success of a number of isolated combats, and requires the simultaneous attack of masses in equal strength along the whole front, in order to exhaust the defender at all points and prevent his withdrawing troops from any part to reinforce with his reserves that most seriously threatened. The decisive attack is not only to penetrate the enemy's position, but rather to push forward through the gap thus formed the supporting troops, hitherto kept in fairly close order, and, rapidly deploying them, to spread out in fan-like extended order and envelope the defenders, so as to prevent their restoring the battle at that point. The supporting troops must, therefore, make no halt in the position, but push forward.

In the main the author is abreast of modern thought and rightly assigns the greatest importance to the action of the Infantry: "*Where the Infantry strides forward in battle, victory lies near. Where it gives way, defeat is not far off.*"

Germany.—Musketry Regulations to suit the Rifle M/98, have been introduced. Machine gun batteries of 4 pieces, which were first tried at the Imperial Manœuvres of 1899, have been supplied. They are especially valuable in hill warfare, not only in defence, but in the attack. The British used them with effect in the Soudan and Boer Wars. General Rohne's views as regards Infantry and Artillery fire continue to prevail. General von Schlichting's influence on the tactical training of the German Infantry is evidently great. The opinions of von Boguslawski, von Schlichting, and von Scherff are well epitomised in an article in the German Appendix No. 10, Beiheft of the "International Revue," 1900, headed: "The Infantry Fight and controversial questions." On the 1st January, 1900, the new issue of the Regulations for Field Service (Felddienst-Ordnung) was made. The principles of the 1894 edition were adhered to. Changes necessitated by the abolition of the Corps Artillery were made, as well as some additions regarding the employment of Cycles, War Balloons, etc.

The distance between Cavalry Connecting Posts is doubled (now 12 miles), and that between Cyclist Posts fixed at 50 kilometres (31 miles), new instructions for the mobility of Contact Squadrons are given. As a

rule an Infantry Division (12 Battalions) will push forward 1 Regiment (3 Battalions) in the Advanced Guard. Whether artillery is to be sent is decided by the commander. The distances are increased from the van to the main guard and may now be nearly a mile, and a company pushed out from the van may be 554 yards in front of it. Infantry marching alone strengthens its point, indicating the intention to scout for itself. This may sometimes be done by cyclists. The splitting up of the advanced troops into small parties is objected to.

In *Outposts*, the term *Piquet* is abolished for Cavalry, this word being restricted to Infantry. No stress is laid upon a line of Cavalry Outposts in front of the Infantry, but when in contact with the enemy the envelopment of the enemy's flank by Cavalry pushed out from a flank is recommended.

The posting of Infantry *Piquets** is no longer dependent on the importance of the road to be guarded, but it is considered important to secure any post which is distant from its company, leaving the road itself to be watched by an independent non-commissioned officer's post.

The importance of a post, not its strength, is to determine whether it should be an officer's or non-commissioned officer's post.

Cavalry outposts are instructed to use their firearms. A *vedette* consists of 3 men generally dismounted, of which 2 are constantly watching, the other resting.

"Advanced Squadrons" support the contact squadrons and connect them with the outposts. At night officers' or non-commissioned officers' posts remain in touch with the enemy. Some cavalry are also attached to each outpost company for scouting.

On the march the average rate for a Division is reckoned as $2\frac{1}{2}$ miles an hour, inclusive of halts. Columns are to be shortened. Artillery ammunition wagons move in rear of the column of guns, the divisional ammunition columns in rear of the fighting troops of the column.

The Imperial Manœuvres, 1900, in Pomerania.—The Report gives a short account of these, but as they were especially detailed in this JOURNAL for February, 1901, it is not translated here.

The *Felddienst-Ordnung* directs that no pauses are to be allowed at manœuvres to admit of the receipt of orders or changes in command, but that everything is to be carried out as in war.

Italy.—Company commanders of 4 years' service are now allowed horses. A 4th Cycle Company is now added to the three Bersaglieri Regiments Nos. 4, 5, and 9.** The cycles are not of the former folding pattern, but made on the *Melli-Rossa* system. 2 Cycle Companies took part in the Cavalry Manœuvres.

Russia.—The new Infantry Drill, provisionally issued in 1897, has been approved with slight amendments after $2\frac{1}{2}$ years' trial. In principle

* It will be remembered that as a rule in the German Service whole companies are pushed forward on outpost duty, finding the supports, piquets, and any detached or examining posts, etc.—TRANSLATOR.

** There are 14 Bersaglieri Regiments, each of 3 Battalions (1,000 Rifles).—TRANSLATOR.

troops in close order work entirely by word of command, so individual fire is then forbidden. In close order the formations are not so dense as formerly. A new "rapid step" has been introduced for the advance under effective fire, but no fixed rate is laid down. The length of pace is from 28 inches to 35 inches, according to the height of the man. In the Battalion in Attack and Defence it is laid down that only exceptionally are whole companies to be extended or to reinforce. The Russians have, however, given up the French plan of having no line of supports in the attack which they had provisionally adopted, and have resumed that of having supports in the first line as the Germans have.

The Manœuvres held in 1900 were not altogether satisfactory, the Cavalry not having been pushed forward enough, especially during the passage of the Weichsel between Warsaw and Ivangorod by a large force of 4 or 5 Divisions (68 Battalions, 47 Squadrons, 192 guns), defended by a force of 50 Battalions, 44 Squadrons, 150 guns. The points of crossing were reported early to the defenders, who massed their troops accordingly to oppose the passage, withdrawing them from all other points of passage. This was taken advantage of by the attacking force to make good their crossing at some of those points, the reported attempts having been mere feints to deceive the defenders.

Great use was made of Mounted Rifles attached to Infantry for scouting purposes.

General Dragomiroff, remarks in regard to the tactical manœuvres, which were held in the Petersburg District and which lasted 12 days, 95 Battalions, 56 Squadrons, and 42 Batteries taking part, that the rôle of Horse Artillery is different from that of Field Artillery. The former begins where the latter leaves off; that is, the Horse Artillery should, owing to the rapidity with which cavalry moves, at once gallop forward to a flank, opening fire on the opposing cavalry and continuing to fire on it until the advance of the cavalry masks its fire. Then it turns its guns on the hostile artillery. Field Artillery, on the other hand, should *first* engage and subdue the hostile artillery and, when that is done, turn its fire on the enemy's Infantry.

Winter Manœuvres were held at Kaluga. The scouting was done by men on snow-shoes, and the guns were drawn on ordinary country sledges, 3 being used for each field gun. Special sledges were also constructed, one for the gun and carriage, the other for the limber. These were not a success, the centre of gravity being too high up.

War dogs were tried, the following being the resulting opinions formed:—

1. Dogs may be of service on watch posts where their natural alertness and sense of smell may supplement the intelligence of the men.
2. They are not trustworthy enough to deliver messages or cartridges.
3. In each company a certain number of men would have to be constantly employed in training and looking after these

dogs, which would withdraw them from their more important legitimate duties.

4. Well-bred dogs are no more trustworthy than common yard dogs.

The Russian Field Service Regulations have been much criticised, especially as laying down too much in detail what is to be done in each particular case.

This year Rules for the employment of the three arms in battle were issued. Detailed instructions are given for the conduct of Infantry, Cavalry, and Artillery in attack, defence, operations by night, in winter, on the steppes and in the mountains.

Stress is laid on the massing of Artillery and Cavalry in battle, the scouting of the Cavalry is to be continued during the action, and the cavalry leader is to lose no opportunity of attacking that offers, no excuse being allowed, such as the presence of hostile cavalry, etc.

Whereas the German Regulations chiefly deal with the encounter battle, the Russians prescribe what is to be done in the attack on an enemy already deployed in a defensive position. Until the Infantry arrives within effective rifle range its movements are to be subordinate to those of the artillery. From that point onwards, the artillery is to conform to its requirements of the Infantry fight.

Great stress is laid on the offensive throughout, and as the Russian advanced guards are large and posted far forward, independent advanced guard actions are favoured by the Regulations.

On the defensive the necessity for counter-attack is accentuated even to the delivery of partial sallies from the position. Advanced positions may be occupied, but must not be defended to the last, as the assailants might then, if successful, follow their defenders closely, and enter the main position with them. The directions for night attacks are to advance without firing with deployed companies in two lines, all distances and intervals being shortened. The touch between companies is kept up by infantry patrols. Special patrols watch the enemy. Reserves are close up. In the instructions for night attacks, directions are always to be given as to what the leaders are to do in case the attack is prematurely discovered by the enemy. Deployment from the march formation to night attack formation is to be delayed as long as possible. The position is to be stormed in silence, and only when it actually comes to the *mêlée* are cheering and drum-beating to be allowed, as in the dark it might easily happen that the actual position has not been entered, and the noise made would preclude the possibility of surprise.

CAVALRY TACTICS.

General Observations.—The war in South Africa has again shown how important and indispensable a well-mounted and trained cavalry is. The theoretical views regarding the disappearance of cavalry in face of modern firearms have vanished. The employment of cavalry masses at manœuvres, which has become general, proves this. The strategical

employment of cavalry was only practised in Germany. At the other manœuvres the distances between the opposing forces at the commencement was too slight for proper reconnaissance on a large scale. In the South African War the increased importance of tactical reconnaissance was shown. Peace training in careful reconnaissance and riding, and in properly reporting what is useful in war, is seen to be more than ever necessary. But no mere cut-and-dried instructions, nor the too frequent peace practice of reporting as much as possible, will produce skilled and experienced scouts. Strictly limiting practice in peace to that which is possible in real war may do so. In France the best reconnoiters are now distinguished by a special badge, which has been proposed in Germany.

Signalling with heliograph and limelight, as used in South Africa, is now introduced at all great manœuvres.

Wireless telegraphy, war balloons, messenger pigeons, stationary and portable limelight apparatus, enhance the efforts of the cavalry in reconnaissance.

The necessity for a numerous, well-mounted and *trained* cavalry for pursuit has once more been established by the Boer War.

The cry in South Africa was throughout for cavalry and more cavalry, and it still continues. This points to the necessity for an increase of the German Cavalry. In the last 30 years Russia has increased her cavalry by 212 squadrons, Austria by 105 squadrons, and France by 70, whereas the corresponding increase in the German Army has been of 21 squadrons only, although its Infantry has been increased by 203 battalions and its Artillery by 322 batteries since 1870.

The use of firearms by Cavalry in case of need is more than ever required, but this does not necessitate its conversion into Mounted Infantry, as some advocate, though increased attention will have to be paid to long-range firing and judging distance, the use of machine guns, etc. The Boer War has shown the great use of the Cavalry machine guns.

Though the Mounted Infantry attached to the British Cavalry in South Africa rendered occasionally good service, we must remember that their horses broke down so quickly, owing to their want of knowledge of horse management, that only a country as rich and as well assisted as England could have afforded to replace the waste in horseflesh. For European warfare it is undoubtedly better to have Cavalry able to perform their task without such auxiliary aid.

The question of Horse Artillery with the Cavalry Divisions must also be considered. The proposal to have 3 batteries Horse Artillery with the Division, so that one battery may be attached to each of the 3 Brigades, has much to recommend it.

In Germany, France, and Russia experiments were made at last year's manœuvres with boats made of lances and sail cloth for the passage of small rivers. In Austria aluminium boats were tried, and gave general satisfaction.

The Boer War has brought to the front the remount question and the breeding, feeding, and training of horses for war purposes, and all

European nations are engaged in considering these points and the supply of horses to officers.

The use of cyclists attached to cavalry units to relieve the horses from much orderly work is attracting attention. Though in France and Italy folding bicycles are still adhered to, in Germany and Austria they have been given up, rigid cycles being considered more practical. In Germany Infantry Cyclist detachments were used as fighting units with the Cavalry Divisions, but in other countries this has been much opposed.

Motors have been found very useful with Cavalry; and as traction engines shorten the length of trains by from one-third to one-half, they will be of great importance in bringing up the trains to masses of Cavalry pushed ahead. In England they were tried for the transport of heavy guns.

CAVALRY OF THE CHIEF POWERS.

Austria-Hungary.—In Austrian Cavalry circles the wish to obtain stouter built horses has been expressed. White Artillery horses are no longer to be used, as offering too conspicuous a mark. Those of light colour bought in Russia were painted over, and the darker colour thus obtained is said to last a month or more.

At the manœuvres in September in Galicia the opposing forces were too near one another at the outset, and the ground was too unfavourable for successful Cavalry strategic and tactical action. Infantry rifle battalions were attached to the Cavalry Divisions. Each Cavalry regiment had a Cavalry pioneer section of 8 men equipped for telegraph work, demolitions, etc.

Cyclists were used as messengers, but not as fighting troops. Motor-cars and traction engines were used, but did not answer well on the heavy ground, from which it seems that they were not of very perfect construction.

This year 4 Army Corps with several Cavalry Divisions are to operate near Fünfkirchen, in South-West Hungary.

England.—The British Cavalry has had opportunity during the past year of ascertaining by the searching experience of war the faults of its peacetime training.

Notwithstanding her previous experience of the Boer fighting methods, it needed severe reverses to convince England that her tactics, though they might be suitable to wars waged against inferiorly armed tribes, were inapplicable to her present opponents, and that not only must her infantry tactics be changed, but that she required a Cavalry well trained in reconnaissance, which should combine mobility with fighting power. A Cavalry Division was therefore formed under a capable leader, with a numerous Artillery and Mounted Infantry attached, and a country was selected for the chief theatre of operations where the advantages of this mobile force could be utilised. To the organisation of this Cavalry force may be attributed the great change which soon took place in the position of affairs.

The writer here gives a *résumé* of General French's well-known operations up to the occupation of Bloemfontein on 3rd March, 1900. After this Cavalry and Horse Artillery operations were for the time impracticable owing to the loss and exhaustion of the horses, few regiments having more than 150 horses, and the Artillery being compelled to move at a walk only. It was only after many weeks that the arrival of 4 fresh Cavalry regiments and of remounts for nearly the whole Cavalry that the Cavalry Division was able again to take the field.

By the end of December, 1900, 123,428 fresh horses and 66,727 mules had arrived in South Africa.

The Basuto and Burmah ponies are said to have stood the voyage and work on the veldt best. The treatment and feeding of the horses by the Mounted Infantry, who showed themselves ignorant of the management of horses, is much criticised, as also the quite insufficient numbers of the Veterinary Department.

In consequence of this, Government breeding establishments are to be started in England.*

The indifferent scouting which caused touch with the enemy to be frequently lost, though accounted for by the absence of trustworthy maps, the over-laden, over-worked, hungry, and thirsty horses in a strange country where invisible foes constantly shot down the advanced scouts, may also be attributed to the indifferent peace training in this art. At the Cavalry Manœuvres held in September, 1900, great improvement is said to have been made in regard to this, as it was carried out with close attention to war conditions.

Where the Mounted Infantry** which was 10,000 strong, was properly handled it rendered good service, but not where it was recklessly used, as by Colonel Hannay, who rode against Cronje's entrenchments at Koodoosrand, and fell with the loss of half his force and horses.

The dress and equipment of the men seem to have been good, but the weight on the horses excessive.

France.—All Dragoons will apparently be shortly provided with lances. The number of rounds for rifle practice will be much increased. The dolman is to be given up. The 1st and 5th Cavalry Divisions each of 3 Brigades of 3 Regiments each, manœuvred in September, 1900, south-west of Chartres, under the direction of General Brugère.

Strategical reconnaissances were not properly carried out owing to the distance between the opposing forces being too short. The tactical reconnaissance, especially on the 15th September, was a failure. Messenger pigeons were used and cyclists as messengers only. Signalling was practised.

Motors were much used by the Commanders at the rate of 37 miles an hour. One traction engine drew 30 heavy supply wagons.

* This is mere newspaper gossip, as no orders have been issued for this.—TRANSLATOR.

** The writer probably alludes to our Imperial Yeomanry.—TRANSLATOR.

All Cavalry officers are to be made acquainted with the use of the electric telegraph.

Germany.—The new Field Service Regulations (Felddienst-Ordnung, 1900), introduced certain changes in the strategic use of Cavalry.

The Cavalry Division is no longer responsible for "screening." This is performed by the divisional Cavalry, which, it is considered, should be increased.*

"Scouting" squadrons is a new term. Much greater latitude is permitted in the arrangements for Cavalry Reconnaissance, no hard and fast schemes being allowed.

The Report praises the British Cavalry and Mounted Infantry equipment, short boots and putties being easier put on and replaced than the long boots worn by German Cavalry. Lancers require no swords; these should be replaced by a short hunting knife, that could on occasion be used as a bayonet with the carbine.

Besides the 11 machine-gun batteries already in the German Service, 5 more are to be added by the Establishments of 1901. Hitherto they have been attached to Infantry or Rifle Battalions. Their employment, however, with the Cavalry Divisions seems to be indicated. This is done in Switzerland and England.

The Report goes into the action of the Cavalry on both sides in the Great Manœuvres in Pomerania, which have already been described in this JOURNAL, and expresses its satisfaction with the work done, and with the progress made in signalling, wireless telegraphy, pigeon-post service, etc.

The Engineers attached to the Cavalry Divisions were carried in wagons. Motor-cars were used by the Staff and for the express messenger service, and proved most useful.

Russia.—The Field Service Regulations of 1899, though still inclined to lay down too much, are a distinct advance upon the former issue. The five chapters of Part I. treat of Organisation for War, Leading in War, Reconnaissance and Security, Marches, Camps, Cantonments, and Bivouacs.

The reconnaissance is entrusted to the Advanced Cavalry detachments or corps; screening to the advanced guards; outpost service, hitherto chiefly performed by Cavalry, is now relegated to the Infantry.

The instructions for the troops in battle seem to fulfil their object to ensure mutual action and support, as far as this can be done by regulation. Every kind of action is dealt with and provided for. Cavalry attacking Infantry do so with the whole weight of their fighting formation, which is in several *échelons*, with a reserve. In attacking defiles, Cavalry may attack in column. A general attack of Cossacks with Dragoon detachments and the "Lawa" is said to promise good results. Rules for the dismounted action of Cavalry are given.

* The German divisional Cavalry consists of 1 Regiment Cavalry of 3 Squadrons, whereas at present only 1 Squadron is allotted to a British Division.—TRANSLATOR.

The question of remounts is gone into, the chief feature of which is the abolition of the middleman in purchases.

At the Great Cavalry Manœuvres at Lorza in August, the South Cavalry crossed the Pljussa river by swimming, and then made a general attack upon that of the North while it defended the bridge with dismounted Dragoons and Horse Artillery. It was adjudged the victory.

FIELD ARTILLERY TACTICS.

General Remarks.—Though France and Germany have adopted Q.F. field guns and other Armies have made improvements in their Field Artillery, they have not yet come into general use. One thing is certain, that guns, howitzers, or field-mortars delivering high-angle fire, are indispensable to a Field Army. The South African War has confirmed the necessity for this, which was foreshadowed in previous Reports.

The German Field Artillery has done well to retain common as well as shrapnel shell for use with its Field Batteries. The Report goes into technical details, covering several pages on this subject, which our space does not admit of following.

When massing guns against a strong defensive position, the distance should first be found by trial shots of a single battery, before the whole line of guns opens fire simultaneously on the intended point or points of assault. This will not betray these points to the enemy prematurely. Direct fire is the risk. When the country or the conditions of the fight make a concealed position necessary, then indirect fire is used.

The days of trial shots as range-finders are past. France, Great Britain, and Italy all use range-finders, and Austria is experimenting with one.

Artillery must, however, pay much greater attention than heretofore to careful, thorough *reconnaissance* of the enemy's position and of the ground in front, if full advantage is to be taken of these.

England.—The tactical principles of the British Field Artillery are in accord with those of the chief European Armies.

Massing of guns and fire, unity of control, fire effect, cover and mutual support of Infantry and Artillery, are maxims which characterise English Artillery Drill. The necessity for the use of field howitzers against entrenchments was recognised, and these were supplied. Yet at Magersfontein, Colenso, Spion Kop, Vaal Kranz, the British Artillery failed to overwhelm the Boer guns so as to make the assault of their positions easy. This was because these guns did not attempt an artillery duel with the British guns, but withdrew them for the Infantry assault or awaited favourable opportunities, such as when the British guns were changing position, etc., to fire on the latter.

Effectual reconnoitring of the Boer positions was much hindered by the extraordinary nature of the country, by the perfection of the defensive arrangements of the Boers, and by the skill with which their entrenchments were laid out and concealed. It is at the same time impossible to

acquit the British of want of thoroughness in their reconnaissance, which led them to neglect pushing scouts forward closer to the enemy's entrenched positions. It was impossible to judge of the Boer positions and dispositions from distant observation, as they kept their men so well concealed and withheld their fire.

In such cases no amount of self sacrifice and valour (which the British Artillery certainly displayed) could avail.

Had the British had a well-organised system of scouting, they would have been spared many a disaster. Notably at Magersfontein and Colenso they mistook the actual Boer positions, thinking they were just below the crests of the kopjes, whereas they were in reality at the foot of those in advanced positions.

The fire effect of the lyddite shells was, by Boer accounts, far less than that expected. It failed in depth, and only was destructive in a limited radius, even when the shells exploded immediately on impact.

The shrapnel of the field guns was also less effective than was expected from the reports of the Soudan War. That was because its target was not so easy, and that instead of the range being about 3,000 yards or under, it had to be much greater, owing to the Boer long-range position guns, and for this the fuzes were not adapted. Therefore, the terminal velocity of the bullets was too slight to be effective. Another reason was, that the Boer trenches were zig-zagged in trace and well traversed, so that even the enfilading effect of the shrapnel was much minimised. It was not so much the fault of the British field guns, however, as of the training of officers and men, who failed to understand their proper use. The Artillery had only been practised in field firing in small detachments. Such a thing as *continued* mutual action on a large scale habituating the two arms to work together and engendering mutual confidence in leaders and men, which we in Germany consider indispensable to success in war, is unknown in England.

The invariable practice of the British to keep back their Infantry until the Artillery action is over was noted by the Boers, who kept quietly hidden in their deep trenches, well provided with splinter-proofs, until the artillery bombardment was over, reserving their whole energies for the Infantry attack. Had the British, as the German Regulations now recommend, pushed forward their Infantry *simultaneously* with the artillery bombardment to reconnoitre and draw the defenders' fire, the Boers would have had to man their trenches, and would have suffered proportionately greater loss. Even when the howitzers came into play and the enemy's position was well known, these were not very effectual.

The Field Artillery neglected no opportunity of supporting the Infantry at close range, but their field gun is rather a heavy one, and it was not always possible for these to follow the Infantry quickly over the rough country. It is impossible to give a detailed account of the Artillery in their many engagements in South Africa. A striking criticism of the Artillery action is to be found in von Hoffbauer's "Development of the Mass Action of Guns in the Prussian Army."

France.—At the beginning of the year 1900 three important Artillery questions were awaiting decision :—

1. Was the Corps Artillery to be retained, or, as in Germany, to be distributed among the Divisions?
2. The number of guns required for an Army Corps.
3. The question of 4 or 6 field guns in a battery.

The first question has been much discussed, and is not yet decided, but the tendency seems to be towards the German system, and that the Artillery Generals are willing to give up special artillery interests to the general good, on the understanding that Divisional Generals are practised as frequently as possible in the conduct of artillery in combination with the other arms.

At the autumn manœuvres last year, however, the existing organisation was retained.

The second question has also been much discussed, the outcome being that for the present 120 guns per Army Corps are required.

The third question has at last been decided in favour of 4-gun field batteries, but that 11 to 12 ammunition wagons are necessary for each battery.

As regards steel shields to be carried on the field guns, opinion in France is much divided. It is said that but little protection is afforded by them for the extra weight carried, and that it is difficult to conceal the position of guns carrying them.

The French Artillery officers are apparently of opinion that bold forward action is of more importance than concealment.

Excepting in certain cases where the Artillery was kept too far back before coming into action, or was thrust into the fight in too desultory a manner, or where it changed position too frequently, the French Artillery at the manœuvres was well handled. Its mass action and the concentration of fire on decisive points were much praised.

The disposition of the ammunition wagons in the line seems inconvenient as regards replenishment of ammunition, and dangerous under the fire of Q.F. field guns.

It must be remarked, however, that, owing to the extreme secrecy observed in France in regard to artillery matters, it is very difficult to get reliable information as regards this arm in that country.

Germany.—The new organisation of the Artillery has been carried out as foreshadowed in last year's Report.*

The regulations for marches are in accordance with this. The commander of a force determines whether Field Artillery is to be attached to the Advanced Guard, and if so in what strength. Field Artillery is to be as near the head of the main columns as its early employment in the fight necessitates and considerations for its safety admit of.

With Rear Guards the action of artillery from flanking positions is recommended as facilitating the retirement.

* See November, 1900, No. of this JOURNAL, p. 1318.—TRANSLATOR.

Great stress is laid on care in replacing expended gun ammunition. After every action report is to be made to the commander as to whether this has been done.

In manœuvres great attention is paid to accurate judging distance. As fire effect cannot be well judged of, this is taken into consideration by the umpires.

General officers and colonels of Infantry and Cavalry chosen for the purpose yearly are to attend the Artillery winter courses.

Russia.—The discussions mentioned in last year's Report,* regarding the reduction of the 8 guns in the Field Batteries to 6 have led as yet to no change being made.

The regulations for Attack and Defence are similar to those in the German Artillery Drill, but while the latter recommends the line of batteries at half or close interval when acting in masses, in order to allow of other batteries arriving on the field coming into action without mixing up the units, the Russians recommend keeping the batteries in line at full interval.

In attack, as soon as the point of attack is indicated, the guns take position to a flank. In attack officers are to be sent forward to make outline sketches of the enemy's position, before the guns take up their ground. On the defensive the construction of gun-pits is the rule.

In the Horse Artillery fight, supporting cavalry, the two batteries are to act together, not separately.

In attacking Infantry, the Cavalry must manœuvre so as to hamper the Horse Artillery as little as possible in its action.

The Russian Artillery is not guided by the new "Instructions for the Troops in Battle," in which stress is again laid on the necessity of working by masses.

Up to within effective Infantry range that arm is to be guided as to its positions by the requirements of the Artillery. From that onwards the Artillery is to choose its positions with reference to those of the Infantry. Artillery changes of position under 1 verst (1,167 yards) are, however, to be avoided.

Batteries going forward to support Infantry are to move immediately behind them and move up with the position with them.

At manœuvres a certain time is always allowed for the preparation of the attack by Artillery. This seems to work well.

ARTILLERY MATÉRIEL IN 1900.

General.—In most States the provision of a Q.F. field gun which answers reasonable requirements is still a matter under discussion. Great stress is laid upon the number of rounds that can be fired in a minute. This is a factor to be considered, when people speak of 8, 10, 15, 20 rounds in a minute, which would soon lead to firing away all the available ammunition too soon. The mechanical perfection of

* See November, 1900, No. of this JOURNAL, p. 1318.—TRANSLATOR.

the loading method, and the higher training of the men so that greater skill in quick loading may be obtained, is what is to be looked for; but with short service and Militia Artillery, this is very difficult to ensure.

It is demanded that the gun shall be concealed as much as possible. To do this the piece when unlimbered must be run up by hand. This necessitates a lighter gun. Formerly it was considered sufficient to conceal the gun in the folds of the ground. Now, owing to the increasing accuracy of gun and rifle long-range fire, this is insufficient. The French are carrying steel shields. Whether the protection they afford makes up for the extra weight carried and their increased visibility is a moot point. The great increase of muzzle velocity lately considered so desirable seems now to be less regarded.

The introduction of Q.F. guns for Fortress and Siege Artillery seems to have made little progress. In Austria, they have done more in this way than in other States. Machine guns long since used for fortress are now in general use in the field.

Austria Hungary.—Little has been done in regard to the Q.F. field gun question. Some Coast and other Fortress Batteries have been re-armed, and attention has been paid to Q.F. field guns and mortars for these.

Belgium.—The Report gives some details of the New Belgian John Cockerill Q.F. heavy and light guns, which it says do not as yet justify the expectations formed of them in Belgium. Their rate of fire is about 10 to 12 shots per minute. Further details are given in the *Kriegstechnische Zeitschrift*, for January, 1901.

England.—There is no law in Germany forbidding the export of war material by private firms, and England was able to purchase from the *Rheinische Metallwaaren- und Maschinen-Fabrik*, of which Herr Heinrich Ehrhardt is the chief constructor, 18 batteries of 6 guns, 9 ammunition and 3 provision wagons. These were delivered five months after the contract was signed. We understand that the Government has expressed a wish that no further supply of guns shall be made. The purchase was made in Germany, because the British firms, of which only two, viz., Vickers, Sons & Maxim, and Armstrong, Whitworth & Co., are capable of turning out good war material, were so slow in their delivery. The Woolwich Arsenal was another source. In 1899, the Government had already ordered from each of the above-named factories a battery in view to the introduction into the British Service of a Q.F. field gun of entirely new pattern. The C.I.V. Corps took out a 7.5 centimetre (2.95 inch) Maxim-Nordenfeldt (Vickers-Maxim) Q.F. Battery, the guns being of old pattern. A battery was offered to, and accepted by, the Government by Armstrong's factory, which was originally intended for the Elswick Volunteers.*

The Report gives further details concerning Sir George Clarke's Q.F. spade arrangement for our field guns.

* These were 12-pounders of the 12 cwt. pattern—see JOURNAL for August, 1901, p. 993.—TRANSLATOR.

It says that the effect of the lyddite shells was not so great as was expected. That in soft ground or against newly thrown up earthworks they were quite ineffectual, though the larger shells worked with good results against brick or stone.

France.—The Report speaks of the impression made on all foreign military officers by the French Q.F. field guns at the Manœuvres in La Beauce, in 1900. It quotes the description of these guns given by the *Times* Correspondent in that paper of the 22nd September, 1900, and says that a new departure has certainly been made.

The weight of the shell is about 14 lbs., the muzzle velocity about 1,800 foot-seconds. Details are given in the 4th and 5th Vols. of *Kriegstechnische Zeitschrift* for 1900.

Germany.—The details of the Light Field Howitzer are as under: calibre 10·5 centimetres (4·134 inches), length about 12 calibres (4 feet 1·6 inches), weight of piece 496 kilogrammes (13·65 cwt.). The breech is on the quick-loading "Keil" or "Leitwell" system by Krupp, of Essen. Total weight about 21·5 cwt.

The Report on these gives further details, which want of space forbids our transcribing. The common shell weighs about 34½ lbs., the shrapnel carries 500 bullets of 10 grammes (·35 oz.) weight. Time and percussion fuzes are used with each up to about 5,600 metres (6,121 yards) range.

The 15-centimetre (5·9-inch) heavy Howitzer is removed to the heavy position batteries.

Two batteries of Krupp mountain guns are in China.

Japan.—Japan has been experimenting in the direction of Q.F. field guns ever since the Chinese War.

A large amount of matériel has been ordered from Krupp, which can be put together in Japan, where they desire to support home industries. 100 mountain guns were ordered from the Schneider-Canet firm, but have not been delivered. It is thought the Russian Government may have had something to do with the delay.

Portugal.—The Horse Artillery has been armed with 2·9-inch Krupp Q.F. field guns. The Field Artillery still have the 8-centimetre field guns.

Russia.—Lieut.-General Engelhardt, the Chief Constructor, lays great stress on a good rate of fire. For this great steadiness of the gun is necessary. He also demands great muzzle velocity up to nearly 2,000 foot-seconds. 1,000 of his guns have been ordered, but the Government has not finally decided in favour of his system. Should guns of an improved kind be adopted later, these will be made use of in Central Asia, etc., to replace the other patterns now there. The rate of fire attained is about 10 rounds per minute.

Detailed tables are given in the Report (p. 382) comparing the Russian light field gun M/95 with the German field gun M/96, and the Russian field mortar M/91 of 15·25 centimetres with the German light field howitzer of 10·5 centimetres.

In 1900 machine guns (Maxims) were given to the 3 Siberian Army Corps.

Sweden.—The Krupp 7.5-centimetre (2.95-inch) Q.F. field gun has been tried, and it is believed successfully, though the details have not been published.

The 6.6-millimetre Hotchkiss machine gun of the Swedish pattern has been recommended by the Ordnance Experiments Committee for adoption, its advantages over the Maxim and Nordenfeldt machine guns being :—

1. Simplicity of construction and repair.
2. Easy recognition of any failure to work properly.
3. Absence of necessity for a water-cooling jacket, so that its presence is not betrayed by the steam.
4. Not so easily injured by damp or dust.
5. Not so easily put out of gear by torn cartridge cases.
6. Cartridge cases less liable to burst.

Switzerland.*

Turkey.—As the result of recent trials, a contract is being made with Krupp, of Essen, to furnish 16 Q.F. field gun batteries of 6 guns each. The Ehrhardt shrapnel shells, which were tried in 1899, did not give quite satisfactory results, owing to the excessive scattering of the bullets. The Krupp shells stood the firing tests better, and the time and percussion shells of the other firm did not stand the endurance tests so well.

SMALL ARMS, 1900.

General.—By the experiences of the South African and China campaigns the calibre question has made considerable progress.

In South Africa the 7-millimetre (.276-inch) and 7.7-millimetre (.303-inch) were opposed to one another, and in China from 6-millimetre (.236-inch) to 8-millimetre (.315-inch) were used. Our opinion is in favour of a calibre between 7-millimetre and 8-millimetre. 6.5-millimetre (.256-inch) should certainly be the smallest for practical purposes.

The Mauser self-loading pistols seem to have answered well in war.

PROGRESS IN ARMAMENT OF INDIVIDUAL STATES.

Germany.—All new inventions and improvements in military weapons are tried in Germany.

The new rifle M/98 was served out to the Marines and other troops sent to China. Then the Infantry of the Guard Corps received it. The Line regiments will be gradually armed with it. Only a small number of these rifles are to be manufactured by private firms in Germany, such as Mauser in Oberndorf. Foreign firms are excluded.

The sighting of this rifle is for 200, 300, 400, 450, and for every 50 metres from that to 2,000 metres. It is called the Langesche sighting.

* The details of the new Swiss Q.F. field gun were given in this JOURNAL for April, 1901, p. 494.—TRANSLATOR.

The rifle is 4·1 feet long, bayonet 2 feet $1\frac{3}{4}$ inches long; weight without bayonet, 8 lbs. 15 ozs., with, 9 lbs. 14 ozs.; weight of 5 rounds $5\frac{1}{2}$ ozs.; a cartridge box (for knapsack) with 15 rounds weighs $16\frac{1}{2}$ ozs.

An improvement on the Mauser pistol was tried in China, and gave satisfaction.

France.—The new Dandeteau rifle has not yet been served out to the troops, though the experiments at the School of Musketry and at the Camp of Chalons were successful.

Holland.—The whole of the Infantry is now armed with the Mannlicher mark 1895, which has a calibre of ·236 inch; length, with bayonet, 5 feet 4 inches; weight without it, 8 lbs. 8 ozs. A Major Giel is said to have designed a good light rifle only 6 lbs. 8 ozs. in weight.

Norway.—By convention with Sweden the rifle ammunition manufactured in Norway was to be of the same calibre so as to fit the Swedish rifle, though it is of a different pattern from the Norwegian arm. The Norwegians are stated to have evaded this contract. Recent experiments show that to resist penetration by small-bore rifle bullets 2 metres thickness of snow is required.

Portugal.—The Portuguese troops have been uniformly armed with the Mannlicher 6·5-millimetre rifle.

Russia.—The Militia are to retain the old Berdan till they are armed with the new three-lined 7·62-millimetre (·299-inch) rifle.

Sweden.—The Swedish Army will by the end of 1900 have only 95,000 Mauser rifles, 6·5-millimetre, out of the 200,000 for which the money was voted in 1896.

Switzerland.—The short rifle M. 89/1900 has been ordered to be supplied to position artillery, fortress troops, telegraph and balloon companies and cyclists, and this is being gradually effected.

Trials with different kinds of "self-loader" pistols and revolvers have been made since 1897. The results are:—1. Borchardt-Lueger. 2. Roth. 3. Mannlicher. 4. Bergmann. 5. Mauser. The final result of later trials is that the Borchardt-Lueger has been recommended. This has a calibre of 7·65 millimetres (·301-inch); length of barrel, 4·72 inches; total length, 9·33 inches; weight with magazine, 2 lbs., which carries 8 cartridges, each weighing 1·4 oz.

MILITARY APPLIANCES.

The Report notices the new military appliances discovered or tried during the year. At the French manœuvres a new lighthouse car was in use. This was a motor-car with two seats (one for the driver and the other for a staff officer), carrying its own accumulators, and a lightly-built pillar throwing the electric light, which is generated by a dynamo of 7·H.P., a distance, it is said, of 2 miles. A new range-finder by Carl Zeiss, of Jena, is described, and the photo-stereo binocular of Goerz and that of Tiedner are mentioned. These and other binocular range-finders are more fully described in the *Kriegstechnische Zeitschrift*. Vol. III., of 1900.

An Infantry range-finder, by Major von Zidlitz, was tried at the School of Musketry at Spandau, and met with approval. Each company is to be supplied with that or a similar one.

The Russians are making great efforts to supply their troops with aluminium camp kettles, water-bottles, mugs, etc.

Magnatium is a combination of magnesium with aluminium, which has been invented by Dr. L. Mach. It is lighter than aluminium, and free from the defects of the latter. All cooking and other utensils can be made of it, and cartridge cases, helmet ornaments, buttons, and other articles of equipment, as well as carriage and wagon fittings, can be made of it.

A shield to protect riflemen, invented by Dr. Biles, an Englishman, is said to have been tried by Cammell & Co. It is about $\frac{1}{2}$ inch thick, a little over 1 square foot in size, and has a loophole in it to fire through. It weighs about 7 lbs.

The two English steam ploughs for furrowing up shelter trenches, which were despatched to South Africa, were lost at sea.

Several new kinds of preserved meat and vegetables have been tried.

A steering-balloon with an aluminium car, invented by David Schwarz, was tried with promising results; but the inventor died, and funds were not forthcoming for further experiments.

Count Zeppelin's air-ship* is considered epoch-marking as regards progress in the steering-balloon question. The cost of this also has, however, hitherto proved an insurmountable objection. Great progress has been made in the application of motor wagons to military transport.

At the German manœuvres in 1900 the American "Stanley" or French "Serpollot" motor, driven by petroleum, was tried. It is on the tubular system, and works with little noise.

These are of great use for general and staff officers, as sparing them the fatigue in being always on horseback and facilitating their work. Cyclist escorts can accompany them.

In **France** great attention has been paid to military motor-cars, as motors are in more common use there than in Germany. These are chiefly driven by petrol gas ignited by electricity.

The Mors Co. has brought out a four-seated open car for corps commanders and their staff, which can be easily driven at a rate of 36 miles per hour, and has attained a speed of 50 miles an hour on the flat. It weighs $27\frac{1}{2}$ cwt. Another was tried at the manœuvres in the east of France in May which can ascend steep gradients. The body is of aluminium. The Purzcot covered wagon was tried and attained easily a speed of 12 miles an hour. A "Scotte" steam-power motor is said to have drawn a weight of 3,000 tons of war matériel over 1,800 miles up and down gradients, amounting in some cases to $\frac{1}{10}$ (6°).**

* A description of this was given in this JOURNAL for December, 1899, p. 1381.—TRANSLATOR.

** As these motor-cars travel at an average rate of 25 miles an hour or more, professional cyclists would be required to scout ahead of them. Details of some of these were given in the JOURNAL for November, 1900, p. 1357.—TRANSLATOR.

The English used traction engines for transport in the Boer War. In all the principal European Armies experiments are being carried on with motor wagons, cars, and carriages, for:—

1. The transport of wounded and sick.
2. Field telegraph and postal wagons and other field-message use.
3. For the transport of ammunition and food.
4. For gun transport.
5. In fortress warfare.

As regards armour-plating, the Report states that 15 centimetres (5·9 inches) of Krupp's hardened steel are equal in resisting power to 25 centimetres (9·8 inches) of Harveyized steel, and that the German men-of-war of the "Kaiser" type are equal to any war-ships in the world in offensive and defensive power, and that no nation has ever made such progress in ship-building as Germany in recent years.

The Report states that German naval opinion is not favourable to submarine boats for various technical reasons, and that money outlaid on such dangerous weapons of offence would be better spent on the construction of efficient modern torpedo-boats.

Medical Services.—The section of the Report which deals with the Medical Services concerns itself chiefly with the Volunteer and Red Cross Societies of different nations, and those organised in Germany naturally take the first place. It was thanks to their practical and long-tried organisation and experience that the first German Field Hospital was able shortly after the outbreak of the Boer War to take its place in November, 1899, with that of Holland behind the fighting forces of the Burgher Army. A second followed in December, a third left Naples in March, 1900, for Lorenzo Marques.

By the middle of March, a Station Hospital of 75 beds was established in the Orange Free State. The German Field Hospital had been so well organised and worked at Paardeberg, that it drew forth from Lord Roberts a warm encomium on its excellent arrangements and the zeal and impartiality with which its staff of doctors, nurses, and attendants alleviated the sufferings of the wounded of both sides.

The French nation sent 4 Field Hospitals, 2 for the Boers and 2 for the British Forces, it being the strict condition of their humane mission that aid was to be afforded impartially to both belligerents.

From England, thanks to the liberality of its citizens in all parts of the country, the Princess of Wales was enabled to fit out a Hospital Ship as a reserve to the General Hospitals. The St. John's Ambulance Association gave much assistance by their reserve of surgeons and trained attendants, and the reserve of Army nursing-sisters sent out 40 nurses for distribution among the several Field Hospitals. Hospital Trains were organised, of which 2 were sent to Natal.*

* It is strange that no mention is made of the English Red Cross Society, so long established, and so ably presided over by the late Lord Wantage. V.C.—TRANSLATOR.

In Russia, the Empress herself personally superintended all the preparations and arrangements. The Russian Red Cross Society gave 100,000 roubles (about £16,000) at once in aid of these, and a Field Hospital, which could provide for about 50 wounded at a time, was despatched to the seat of war.

Italy, Spain, Switzerland, and even South America, all lent their aid.

Military Literature of the Year.—Besides various German, Austrian, French, and Italian articles in military newspapers, periodicals, etc., which are brought to notice in the Report, the following are some of the principal brochures and military books mentioned; but, owing to the amount of other matter, the notices are even briefer than usual.

VON MIRNS: *Guide to the Cavalry Soldier*. 25th Edition. Edited by General VON PELET-NARBONNE. Mittler.

Lessons from the South African War as regards the Breeding and Training of Horses, from No. 71 *Militär-Wochenblatt*, 1900.

Experiences and Lessons from the South African War. Streffleur. March, 1900.

ROHNE: *The Tactics of Field Artillery*. 2nd Edition. Mittler, 1900.

„ *The Effect of the New French Field Gun*. Mittler, 1900.

RUSSIAN STAFF: *Artillery under Infantry Fire*. Rules for Conduct of. Streffleur.

STAVENHAGEN: *Principles of Fortification*. 3rd Edition. Mittler, 1900.

A. PRASCH: *Wireless Telegraphy*, 1900. Stuttgart, Enke.

VON LETTOW: *The Wars of 1806-7*. 2nd Edition. Berlin, 1900.

H. HOUSSAYE: *Waterloo*, 1900.

L. NAVEZ: *Les Belges à Waterloo*. Brussels, 1900.

VON VERDY DU VERNOIS: *At Army Headquarters III. The Army of the Crown Prince in 1866*. Berlin, 1900.

KUNZ: *Kriegsgeschichtliche Beispiele*. (Examples from War.) Berlin, 1900.

L. D. VERME: *The Boer War*. Rome, 1900.

VON ESTORFF: *The Boer War in South Africa*. Berlin, 1900.

VON FRANÇOIS: *Lessons from the German Army from the South African War*. Berlin, 1900.

G. DE L'AIN: *Military Life of General Foy*. Paris, 1900.

DE LA FOYE: *Memoir of General de l'Admirault*. Paris, 1900.

WERESCHALGEN: *Skobelev in the Turkish and Turkoman Wars*. (Translation.) Berlin, 1900.

ZANELLI: *Chanzy, P. Fred Charles, and Skobelev*. Rome, 1900.

VON EBERSTEIN: *Experiences with Count Moltke from 1864 to 1871*. Leipzig, 1900.

Lieut.-Colonel DE PHILIP: *The Staff Service in the Wars of the First Empire*. Paris, 1900.

It would be impossible to do more than extract from the list a few such as above. Numerous regimental histories of German and French

Regiments have been published in the period, and several other works touching on the Military History of different periods, which there is no space to mention here.

PART III.

MILITARY HISTORY OF THE YEAR.

The first few pages of this part of the Report are taken up by accounts of the doings of the German Colonial troops in East and South-West Africa, the Cameroons, and New Guinea, the occupation of Samoa and Kiau-Chou. These troops are on the whole considered to have done well. It is hinted that a large increase of this Colonial Army will be necessary, and that an increase of the German naval squadrons in foreign waters is required.

A long account is given of the China War and "Boxer" Rebellion, which we have not space to reproduce. It is interesting and accompanied by good sketch-maps. The narrative, which is given without criticism, is carried down to the arrival of Count Waldersee to command on 27th September.

The Boer War.—An account is given of the war in South Africa, from the further operations of Sir Redvers Buller after the attempted passage of the Tugela, and the arrival of Lord Roberts at Cape Town to take supreme command, to the home-coming of the latter and the assumption of the chief command by Lord Kitchener, as well as some of the events of December, 1900.

It is unnecessary to detail the chief points of the war that the writer dwells on, as many accounts of the war from foreign sources have already appeared in the JOURNAL, and this one does not seem to bring to light any new views of these events worth noticing.* The writer is, as previously remarked, apparently strongly prejudiced against the British, and any criticisms he makes are seemingly based on the Boer accounts of events to which he invites credit. Perhaps the writer is not sufficiently acquainted with the English language to study the British accounts. At all events, the frequent occurrence of the titles "Sir Chermside," "Sir Warren," "Sir Buller," and above all "Sir Roberts" (p. 568), would seem to give colour to the guess thus hazarded. The last calls to mind some of the old French farces, but one would hardly expect it in a scientific periodical conducted by highly-educated German officers. The actual narrative of events is fairly given in many cases, but the British mistakes, of which we are all well aware and which we do not wish to minimise, are generally exaggerated. The action of Dalmanutha (Bergendaal) is meagrely described, and, as this was at all events a well-planned and conducted affair on the part of the British, it would have

*A translation of another German account similar in character, from the *Jahrbücher*, is now running in the JOURNAL. It is not as yet very instructive, except as showing how ill-informed and prejudiced even military writers of a friendly nation can be.—TRANSLATOR.

been fairer to have said a little more about it when so much is made of minor British disasters, and the few Boer mishaps are always accounted for. An account taken from a Rotterdam paper, which ridicules Lord Roberts' official despatches, is quoted with some gusto, and the Report concludes its narrative of the war down to December by saying that not only were 200,000 British soldiers in the country unable to overcome 20,000 Boers, but could not even defend their own territories, as the Cape Colony was over and over again invaded by Boers. The Report most unworthily accuses Lord Roberts of making war on women and children.

The Turko-Grecian Campaign, 1897.—This somewhat belated narrative of the war in Thessalia in 1897 is an excellent *résumé* of the operations, taken chiefly from Baron von der Goltz's valuable account from the Turkish side, but also after comparison with the reports of French, Austrian, and Swiss staff officers from the Greek point of view.

The conclusion drawn from these several sources is that though this trial of the Turkish Army brought to light certain weak points, these could easily be remedied so as to make it a valuable ally or a formidable foe in a European war, while the Greek forces required thorough re-organisation, especially as regards its officers, who must be freed from all political bias and brought to a higher sense of duty and of military subordination.

OBITUARY NOTICES, 1899-1900.

In the long roll of distinguished soldiers who finished their earthly career in 1900, and of whom the Report gives short biographies, the name of Field-Marshal Count Blumenthal stands out conspicuous. The son of a captain of Dragoons, who died of his wounds in 1813, he entered the Service in 1827, and served in the Schleswig campaigns of 1849 and 1864, under Prince Friedrich-Karl. In Bohemia in 1866, where he was Chief of the Staff to Prince Friedrich-Wilhelm, the Crown Prince. Again in 1870 he filled a similar position to this Prince, who held the command of the III. Army all through its victorious career. An officer of scientific attainments and ripe military experience, he was well known and much beloved for his simple, genial, and unpretentious manners. He preserved his active habits and brilliant faculties to the last. He died about Christmas, 1900, at the age of 90.

Short notices of the Russian General and Field-Marshal Gurko and of Prince Imeritinski are given, as well as of their old opponent Ghazi Osman Pascha. Appreciative biographies of General von Tresckow, who died at the age of 82 and was highly distinguished in the Franco-German War; and of his younger comrade, Graf Yorck von Wartenburg, a grandson of Field-Marshal Count Yorck, the comrade of Blucher in 1813-14. A brilliant writer himself, he was well known to students of military history by his "Napoleon as a General," and his untimely death in China is much regretted.

The deaths of Field-Marshal Sir Donald Stewart and of Sir William Lockhart are noticed briefly, and sympathetic place is given to that of the late French Colonel de Villebois-Mareuil, who fell on the Boerside near Boshof. A longer notice is given to General Piet Joubert, the Boer Commander, who is, however, blamed for his method of conducting the campaign, which General Louis Botha, his successor in the command, has materially altered; and of the Spanish Field-Marshal Campos, who acquired notoriety in connection with his chief command in Cuba in 1878. He was again sent out in 1894 to try and end the war, then supported by America, but he was 63 years old, and his efforts failed. He soon resigned his appointment. He had been President of the Senate in 1891. He died in September, 1900, aged 69.

Room is found to mention Gustave Cluseret, who died in August, 1900, aged 77. He was educated at St. Cyr and entered the Service in 1843 as a sub-lieutenant in an Infantry regiment commanded by his father. He served in Algeria and in the War of Secession in America under McLellan. He joined the Fenian cause, and brought himself into public notice by his conduct in the Franco-German War, where he commanded a regiment of Franc-tireurs and was one of the chief leaders of the Commune. He was taken prisoner, but escaped to England, where he was condemned for treason as a Fenian, but let go. Then he served on the Turkish side in the Russo-Turkish War of 1877.

THE SUPPLY OF EXECUTIVE OFFICERS IN THE GERMAN NAVY.¹

Translated from the "Marine Rundschau" of January, 1901.

UNDER the title of "The Education of Naval Officers," an article appeared in the *United Service Magazine* in August last, which compares the French and German systems for the education of naval officers with the English system, and which contains certain proposals for the improvement of the last.

It is of rare occurrence for the English Service papers to enter closely into the organisation of the German Navy, and to honour it with the same attention as is paid to the French Navy; although it is true that the discipline, education, and training of the officers and men of the German Navy, especially abroad, are often favourably noticed by foreign naval Powers. We Germans are credited by other nations with a talent for organisation in military matters, but a certain amount of depreciation, or at any rate of indifference, is shown towards our young Navy. England and France have been accustomed, mutually, to watch closely and to criticise all naval matters and novelties, whether as regards the *personnel* or the *matériel*. It is true, however, that France has lately paid considerable attention to the German Navy; M. Lockroy, the late Minister of Marine, especially having concerned himself, in his writings, with its activity and organisations.

We can, therefore, only esteem it as a matter of satisfaction that the English Service press has lately extended its outlook and begins to take notice of the aspiring German Navy. In the article before us, "The Education of Naval Officers," the subject is one of the most wide-reaching significance for the efficiency of a Navy. It will pay, therefore, to discuss this same question from our own standpoint, and to supplement the English account of our method of education by bringing it up to date with the latest regulations.

¹ "Die Ergänzung des Seeoffizierkorps."

N.B.—The writer, in putting forward the following views, is far from advocating a speedy alteration of the regulations now in force, and which have only been recently issued. The intention is merely to direct the attention of naval officers to an important question of organisation, the final solution of which can only be brought about as the result of extensive experience, and after a thorough testing of the present system of training.

The "Law relating to the German Fleet" of 14th June, 1900, has provided for the necessary increase of our naval forces and has laid down fixed organic forms for the chief constituent—the battle fleet. At the same time the "Regulations for completing the Sea-Officers Corps" have been completed by new "Instructions for the Training of Naval Ensigns in special courses and in practical duty on board ship." (*Vorschrift für die Ausbildung der Fähnrüche zur See auf den Spezialkursen und im praktischen Dienst an Bord der Schiffe.*) By this Law and by these Instructions therefore both the questions of *matériel* and *personnel* are governed. Both questions depend closely on each other and are of the greatest significance for the readiness for battle of the German Navy. The complete wrecking of the Spanish cruisers after the battle of Santiago de Cuba will always stand as a warning example to naval officers, to show that even technically perfect ships, provided with all modern means for attack and defence, when in the hands of an inexperienced *personnel* fail in the hour of stress and soon fall a prey to the enemy. The captain is the soul of the ship. In his person all the threads meet which set the complicated organism of a modern war-ship in motion. In peace he controls the general training of the ship's company, acting always on the principle that the exercises shall be as realistic of war as possible. In him is embodied a part of the fighting power of the ship, his example and his teachings influence his officers, and from these again they descend and leaven the whole ship's company.

One of the most weighty problems to be solved by the Navy is, consequently, the professional training of the executive officers with the view to obtaining conscientious instructors for the men, and to producing, in the future, experienced commanding officers and squadron chiefs. The whole education of the naval officers centres in this one problem; and even in the first stages of forming the cadet into the executive officer, the ultimate end should be kept as much as possible in view.

In order that we may be able to form a judgment as to how this end may be best and most speedily attained, we shall first examine the educational system in vogue in our own Navy.

I.—THE SUPPLY OF EXECUTIVE OFFICERS IN THE GERMAN NAVY.

If we consider the changes which have been introduced in the education of cadets in our Navy, the method of training adopted from time to time makes it clear that no efforts have been spared to solve this weighty problem as satisfactorily as possible.

1. In 1864 the regulations for supplying the corps of officers for H.M.'s. fleet were shortly as follows :—

- a. The physical requirements were essentially the same as now. The entrance examination had to be held before the completion of the seventeenth year, and consisted, for those candidates in possession of certain certificates (*Zeugnis der Reife für Obersekunda eines Gymnasiums oder einer Realschule erster Ordnung*) from a public school or Realschule,

of the first grade in arithmetic, geometry, trigonometry, stereometry, spherical trigonometry, physics, geography, French and English languages, and drawing. For candidates not in possession of the requisite certificate the examination, in addition to the foregoing subjects, included also History, the German language, and Latin.

- b.* Those accepted as cadets underwent a preliminary military training on shore, after which, about the middle of May, they joined the cadet training-ship, which cruised during the summer in the Baltic and North Sea, leaving at the end of the summer for southern latitudes, where it remained during the winter, the ship finally returning to her station at the beginning of May in the ensuing year. The cadets on board received instruction in seamanship, in Service duties, and in professional subjects for promotion to midshipman (*Seekadette*). On the termination of the cruise the examination for midshipman was held on board; the subjects being navigation, seamanship, and gunnery.
 - c.* Those who passed the examination were promoted to midshipman and embarked for two years in a commissioned ship; after which they were sent for a year's study to the Naval Academy. The instruction there consisted of navigation, seamanship, gunnery, machinery of ships, the construction of ships, fortification and land tactics, general Service knowledge, French, English, and drawing.
 - d.* After successfully passing the examination, the midshipmen were promoted to sub-lieutenant, and their educational period ceased. Whenever it was possible, however, they went through a further course on board the gunnery-ship before being appointed for a long commission.
2. About ten years later, in March, 1874, new regulations were issued for the recruitment of the officers' corps, which introduced the following changes:—
- a.* The regulations for first appointments were the same, except that those who had graduated (*Abituriente*) from a gymnasium or Realschule of the first grade could enter up to the end of their nineteenth year without examination.
 - b.* The service on board the cadet training-ship, however, only lasted six months, being followed by the course at the Naval Academy, where the following subjects were taught: navigation, seamanship, gunnery, land tactics, mathematics, physics, English, and French.
 - c.* After passing the examination and promotion to midshipman, the two years' foreign trip on board the midshipmen's training-ship followed. Some of the batches, before going on the foreign trip, went through a further short course on

board the gunnery-ship, and served for four or five months in the armoured squadron. The midshipmen on board the midshipman's training-ship not only received an all-round practical training in the duties of sub-lieutenant, but also instructions in the more practical subjects for the lieutenant's examination (*Seeoffizierprüfung*).

- d. The first examination for lieutenant (*Seeoffizier*) was passed after returning from the voyage, and embraced navigation, seamanship and naval tactics, gunnery, knowledge of the marine engine and ship construction, knowledge of duties, French, and English. Those midshipmen who passed the examination were promoted to sub-lieutenant, without commission, and were then sent to the officers' side of the Naval Academy. The instruction was directed towards preparing for the lieutenant's final examination (*Seeoffizier Berufsprüfung*), and, in addition to greater proficiency in the subjects included in the first examination for lieutenant, the studies embraced land tactics; fortification, drawing, mathematics, and physics. It was only after passing this last examination that the training was considered as completed.

3. Fourteen years later—in 1888—changes were made in the conditions for entry, a certificate of qualification for the upper classes of a gymnasium or Realgymnasium being required, in addition to the entrance examination. In addition to the graduates (*Abituriente*) from these establishments, the privilege of entrance without examination was extended to such candidates as had passed the examination for ensigns in the Army. The entrance examination consisted of mathematics, physics, French, English, and drawing. The training as cadet and midshipman was, on the whole, the same as under the 1874 Regulations, except that it was found necessary to employ the midshipmen promoted to sub-lieutenants, without commission, after passing on their return in the midshipmen's training-ship, on practical duty on board ship or ashore for five or six months before sending them to the officers' side of the Naval Academy. On the conclusion of the course at the Academy the examination for lieutenant was held.

4. In 1893 changes of decided importance were introduced. After going through a four weeks' course of training on shore, the cadets joined the cadet training-ship until the spring of the following year; the ship, as a rule, cruised in home waters during the summer, and passed the winter abroad, in the Mediterranean or West Indies, returning home in the following spring. After passing the examination for, and promotion to, midshipman, they embarked for another full year's course of practical training on one of the cadet and boys' training-ships. On these ships, which also went abroad in the winter, theoretical and practical instruction was imparted, terminating with an examination at the end of the voyage. Those midshipmen who passed the examination were sent for a six

months' course of purely practical duty on the ships of the manœuvre-fleet, and then for a year to the Naval Academy. After passing the lieutenant's examination (*Seeoffizierprüfung*), promotion to sub-lieutenant (*Unterleutnant zur See*) followed.

5. The last regulations for the recruitment of the *Seeoffizierkorps* were issued in April, 1899, and are of importance, inasmuch as that after the practical training of one year on board the training-ship the theoretical training as naval ensign (*Fähnrich zur See*—formerly *Seekadett*—midshipman) is again transferred to the Naval Academy. At the close of the Academy course the principal examination for executive officer (*Seeoffizier*) takes place, and the naval ensign is then sent for half a year to the gunnery and torpedo ships and to the marine infantry for special practical and theoretical courses in gunnery, torpedo, and infantry instruction. Each of these special courses is followed by an examination which has a bearing on the result of the examination for the rank of lieutenant. After completing these special courses, those ensigns who pass the examinations are sent for two years' further practical training on board battle-ships or large cruisers. The theoretical training ceased with the previously mentioned examination. At the end of the first year promotion follows to lieutenant (*Leutnant zur See*, formerly *Unterleutnant zur See*), and the seniority is determined.

II.—THE RECRUITMENT OF EXECUTIVE OFFICERS IN THE FRENCH AND ENGLISH NAVIES.

1. In the French Navy the executive officers are primarily recruited from the pupils of the *École Navale*. This school is on board the training-ship "Borda," at Brest. The period of training lasts for two years. Entrance to the school takes place between the ages of 14 and 18 and depends on the results of a competitive examination and of a medical survey. The subjects of examination embrace French, Latin, English, history, geography, physics, chemistry, trigonometry, geometry (including analytical geometry), arithmetic, and algebra.

The course on board the "Borda" commences on 1st October, the education of the pupils being carried out under strict naval discipline. The ship is fitted with rigging and a battery for training purposes. The subjects of instruction are: drawing, English and German languages, literature, French naval history, universal geography, analysis and mechanics, navigation, astronomy, physics, chemistry, the construction of ships, knowledge of machinery, the handling of ships and seamanship, gunnery, infantry, and torpedo instruction. The six last professional subjects are above all taught practically, two tenders (a sailing brig and a screw aviso) being attached to the ship for the purpose. In addition to these, a torpedo-boat is told off at certain dates with steamboats for the instruction of the pupils. The first period of instruction lasts from 1st October to 20th July and is followed by an instructional cruise on board the aviso in the neighbourhood of Brest. On return from this trip, which lasts about 14 days, another cruise takes place to the various French ports in

the Channel, and Belgian and English ports are also visited, and the first year's course on board the "Borda" closes with a vacation of four weeks. The second year's course ends on 31st July, and the pupils who succeed in passing the final examination then become Aspirants 2nd Class. Formerly the Aspirants 2nd Class were distributed among the ships in commission, and also, for a time, further instructed in a special *École d'Application*. The first method had the disadvantage that the Aspirants had no time to acquire the necessary knowledge of theoretical professional subjects, and it was consequently finally decided to revert to the second plan. The *École d'Application* is on board a training-ship which starts for a long cruise at the beginning of October every year; as a rule the cruise is to the Antilles, Brazil, Argentina, and the Cape. In February the ship returns to Toulon and carries out a three weeks' firing course off the Hyères, on the termination of which she starts again for a three months' cruise in the Mediterranean, finally returning, usually to Brest, in July. After passing an examination on their return the Aspirants receive promotion to Aspirants 1st Class, and their theoretical and practical training for naval officers ceases.

It is worthy of note that, recently, various improvements have been attempted in the *École Navale*—a special committee being charged with the preparation of the scheme of instruction. Everything superfluous is banished; the old subjects of instruction are modernised, and in some respects are completely recast to suit new scientific requirements. The entrance examination is to be materially simplified. Statistics for the year 1899 showed that the 313 candidates for 100 vacancies came from 20 schools, 15 of which were located in either the naval or commercial ports. From this it was concluded that not enough about the Navy is known in France, and it is hoped that by simplifying the examination the recruitment of officers may be spread over the whole of the country.

Finally, it is seriously contemplated to so organise the *École Navale* and the *École d'Application* that the pupils may acquire, at the same time, the theoretical and practical knowledge for both executive and engineer officers. These two classes of officers are therefore to be brought together, and for the future, if experience shows it to be possible, are to become qualified for entry into a single corps of officers. This new venture—the training of executive and engineer officers together so that both classes may have the same origin, the same status, and the same acquirements—appears, however, to meet with great opposition in naval circles.

2. The regulations for entering the English Navy prescribe that the candidates must be thoroughly sound as regards physical fitness and between the ages of 14½ and 15½ years. The examinations take place in London and at Portsmouth in March, July, and November.

The naval cadets are trained on board the "Britannia," to which are attached rowing- and sailing-boats, as well as a tender, for practical training, and large play-grounds on shore for physical training. Instruction includes seamanship, mathematics, navigation, and technical subjects.

The result of the final examination has an influence on the amount of time which has to elapse before being qualified to pass for midshipman. On completing the "Britannia" course the cadets, or midshipmen, are appointed to sea-going ships bearing a naval instructor, who, in conjunction with a naval officer and an engineer, supervises their instruction. Practical duties take the first place, and special value is attached to observations. An examination is held yearly in navigation and other subjects, the papers being set by the Royal Naval College, Greenwich. The results are provisionally examined by the naval instructor, or other officer, and are then sent to the Head of the Naval College. Each midshipman has to take a prescribed number of observations. After completing the required amount of sea service the midshipman undergoes an examination in seamanship, which is carried out *viva voce* by three captains, and returns home as acting sub-lieutenant to undergo the College examination at Greenwich, receiving a certificate of 1st, 2nd, or 3rd Class, as the case may be. This certificate materially affects his promotion to lieutenant. After leaving the College the acting sub-lieutenant goes through courses of instruction in pilotage, gunnery, and torpedo, passing an examination in each subject. Having passed all examinations, his training is completed, and he is confirmed in the rank of sub-lieutenant; his subsequent seniority as lieutenant depends upon the outcome of all the examinations.¹

III.—COMPARISON OF THE GERMAN, FRENCH, AND ENGLISH SYSTEMS OF TRAINING.

If we compare the different systems we shall find a certain similarity between the German and French methods. The school period on board the "Borda" is with us replaced by a year on board the training-ship and a year in the Naval Academy. Instead of the French Aspirant 2nd Class course at the *École d'Application* on board the "Iphigénie" training-ship we have the systematic training in special courses in gunnery, torpedo, and infantry duties. The foreign cruise of the "Iphigénie" is equalled by similar cruises in our training-ship. The English training system, apart from the special courses which correspond with the German system, differs especially in the fact that midshipmen are sent on board sea-going ships-of-war immediately after passing through the "Britannia." The writer of the article on "The Education of Naval Officers" criticises the disadvantages of this system; his remarks may be summed up as follows:—

After his training in the "Britannia" the midshipman going on board a modern war-ship steps at once into a maze of guns, machinery, routines, and stations, without finding anyone to steer him through this labyrinth. The age at which he comes on board makes a continuation

¹ Full details with regard to the subjects to be taken up at the different examinations, and the time allotted for the various courses, etc., are given in the German paper, but it has not been considered necessary to reproduce them in this translation.—Ed.

of instruction necessary, but more unsuitable surroundings for this instruction could scarcely be found. There can be no question of any uniformity of training on board the different ships. Training in gunnery and torpedo, and even in seamanship, especially in boat-sailing, will depend upon the individuality of the captain, and the cadet will be judged accordingly. Even if there is a desire for self-improvement, the cadet does not know what to learn, for recognised text-books are lacking. How little the instruction to be obtained on board ships in commission is appreciated may be surmised from the fact that the plan of instruction at the Naval College, Greenwich, is based on the assumption that the officer who on the average has been on board for $3\frac{1}{2}$ years, and who now has to join the College, possesses no greater scientific acquirements than he did when he left the "Britannia."

The writer comes to the conclusion that the best remedy against these defects would be:—

1. The institution of a training-ship for the first year at sea.
2. That the instruction should be completed before the officer goes on board a ship in commission, so that he could then entirely devote himself to practical instruction in the various Service duties.

From this it follows that the writer unhesitatingly prefers the French and German systems; in fact, he is so satisfied with the latter that he says:—"The German system seems to attain most nearly the object aimed at in naval education—to combine systematic and thorough theoretical instruction with the acquirement of experience in the work and duties of a sea-going ship; but the mathematical standard seems uselessly high."

However flattering this recommendation of the German training system sounds from the mouth of an Englishman, we dare not deceive ourselves that the ideal standard of training is reached, because there is always ground for improvement, and because in our day not only the excellence of the method, but also the *time* within which our young aspirants for lieutenants can be brought up—and consequently become of practical use to the Service—is of the greatest importance.

IV.—INVESTIGATION OF OUR SYSTEM OF EDUCATION AND PROPOSALS FOR IMPROVING IT.

If we test our system from this standpoint we come to the following views and proposals:—

1. The higher requirements for the entry of Seekadette laid down in 1888, which exacted the production of a certificate for the upper class of a Realgymnasium, or of a gymnasium with the passing of an entrance examination, were in the interests of preparatory preparation. The appointment of graduates and of candidates who had already passed the examination for ensigns in the Army without further examination was also a desirable step; bearing in mind, however, that training in seamanship promises most success when the pupils are of a sufficiently young

age to adapt themselves quickly and easily to the special idiosyncrasies of life on board ship, the extreme limit of age, even in the case of graduates, should not exceed 19 years.

2. From 1874 to 1893, that is for nearly twenty years, the midshipmen (*Seekadette*) were promoted after $3\frac{1}{2}$ years to lieutenant and then sent to the Naval Academy as officers. Experience proved that this arrangement, by inducing too great independence and freedom in private life, worked prejudicially both in the interests of discipline and on the acquisition of proficiency on the part of the student. For this reason, therefore, the old rule of 1864 was reverted to in 1893, under which the naval ensigns were only promoted to lieutenant after passing the Naval Academy.

3. The education of ensigns on a training-ship which went for a two years' cruise was well calculated in the time of sailing-ships to turn out officers suited to the practical requirements of the Service. But in face of the rapid development in modern ship construction, and of the increased attainments, both practical and theoretical, required from executive officers, this experience in time proved to be inadequate. Moreover, with the upward spring made by our Navy in regard to *personnel*, it became no longer possible to provide regular training-ships on foreign cruises of two years' duration. As regards numbers, for instance, whereas from 1864 until 1890 a yearly average of 38 *Seekadette* was entered, in the years from 1890 to 1897 the average number reached 76, or just double. In 1898, 1899, and 1900 the numbers entered have been 105, 150, and 202 respectively.

In order to deal with this rapid increase, the regulations in 1893 were altered, so that the first practical training lasted two years in training-ships, which only went abroad on short cruises, and which remained for the rest of the time in home waters. This was followed by service in a modern ship of war by the appointment of the ensigns to the manœuvring squadron, concluding with the theoretical course of instruction at the Naval Academy. The training was thus gone through in $3\frac{1}{2}$ years. This method undoubtedly yielded good results, and yet it had to be given up, not on the ground of efficiency, but from necessity. At the end of the nineties the number of midshipmen rose to 200 a year. The four training-ships of the "Stosch" class were capable of training this large number, but it was impossible to go beyond it. If we reflect what large demands would have had to be made on the *personnel* of the fleet merely to supply a sufficient training staff for the training-ships, it is clear, without further discussion, that an increase of the training fleet to eight ships—even if the Admiralty could have furnished the ships—was out of the question. There was nothing for it, therefore, except to discontinue the system which had proved satisfactory, and to restrict the first practical training on board ship to one year only. After a further year of theoretical training at the Naval Academy, the naval ensigns are then prepared in the most thorough manner by special courses for practical duty, and conclude their training on battle-ships and cruisers. One advantage of this method is self-evident. Whereas

formerly the ensign only joined the home battle fleet and ships on foreign service after $3\frac{1}{2}$ years—till when he could only be fully utilised in case of war—now he becomes available for service in $2\frac{1}{2}$ years. It is questionable, however, whether the comparatively short training period of one year on board a training-ship is sufficient to serve as the needful basis for an effective college training. All depends, therefore, upon the first year being specially adjusted to the end in view, and upon the preliminary training in seamanship being limited to what is strictly necessary. Thereafter, it is essential that there should be an intimate blending of the Academy and the special courses.

4. If now we consider the training on board the Cadet training-ships, a question crops up at once which has given rise to considerable discussion recently in the English Navy, and which is of equal importance to all other Navies. The point in question is, whether the old-established plan of laying the foundation of seamanship by *training in masted ships* is to be retained under present-day conditions. In my opinion, I think that a period of transition may be desirable, but that later a definite break off with the old method must be made. As soon as our old training-ships become worn out, the question will crop up of itself; when that occurs no one is likely to seriously propose to build special training-ships with masts; still less is it likely that anyone will propose to put masts in the cruisers which later on will come into use for training cadets. Without doubt training in masted ships is excellent for physical activity, decision, and coolness of execution, and these qualities are equally valuable to the officer of the future; the old method of acquiring them is, however, no longer available. It must be replaced by a new one which is suited to modern war-ships, and which has as its outcome acquaintance with, and full control of, the multifarious weapons of a war-ship. The sailor's calling, apart from gymnastics, affords rich opportunities in this direction, even without making use of masts and rigging. Rowing and boat-sailing are both of great use for physical development and for training as a seaman, and are always available even on board the most modern ship. As long as masts and rigging are used in the training-ships there is a danger that the short training period of one year will be too much taken up with sail drill, and that this will be at the expense of other subjects. All things considered, therefore, it would seem that a restriction in this respect is advisable.

5. But little attention has hitherto been given to duty in steam-boats, and yet this duty must be considered as of considerable importance in the preliminary seamanship training. Each training-ship should have at least two large steam-boats available, so that the young officers might have the opportunity of thoroughly learning all the various duties not only of boatmen and coxswains, but also those connected with stoking and working the engines. Nothing is more suited to give an insight into machinery than practical attendance on the engines of an ordinary steam-pinnace; nothing is more suited to give an insight into tactical manœuvres than manœuvring with a steam-boat. By these simple means a considerable advance is made towards understanding the ship's

machinery and the handling of a ship, and a solid foundation is laid which assures successful further acquirements.

6. At the Marine Academy instruction is imparted in the following subjects:—

- i. Navigation, naval tactics, seamanship, gunnery and torpedo instruction, knowledge of ship's machinery, and of ships and their construction, mathematics, physics, English, and French.
- ii. Knowledge of duties, mining, land tactics, fortification, and drawing.

The instructional courses in navigation, mathematics, and physics, are, in our opinion, well devised, and limit themselves to just what the naval officer needs for his calling. More especially in mathematics are all superfluous acquirements avoided. For a young executive officer the knowledge of mathematics is only a means to an end. In this respect we entirely agree with the writer in the *United Service Magazine*, who describes the influence of mathematics on practical naval work in the following words:—"In gunnery, torpedoes, and general work marked ability depends more upon a thorough grasp of detail, systematic organisation, and a strong will, than upon mathematical and scholastic talent." Instruction in foreign languages is also adequately treated. It is much to be desired, however, that the course of instruction should include naval war history, and, if possible, geography. At the *École Navale* we find, in addition to literature, French naval war history and universal geography included as subjects in the regular course of study, special attention being directed to foreign naval and commercial centres, to cables, and to the colonial possessions of the great Powers. In our opinion, it is of great importance that our young officers should be instructed on such matters as the development of Germany as a sea Power and on the colonial possessions of the Powers in so far as relates to their principal naval bases, etc. Self-study is difficult, in fact it is mostly impracticable on board ship, and not every officer has the opportunity of studying again at the Academy. It is, consequently, during his first period of development that the opportunity should be taken of directing the young officer's attention to these matters. If the study of naval war were to be taken up we should say that the time now devoted to naval tactics might be curtailed. A knowledge of formations and of evolutionary exercises is certainly desirable in the case of a young officer, but this can be acquired in a simple and understandable manner, and might be limited to the absolutely necessary minimum. The school of practice is the best teacher in this subject. Exercises in steaming and manœuvring in groups afford the best instruction to the young watch-keeper, more especially if the captain and the older officers allow no opportunity for improvement to pass by. What the officer must know of leading in action he will acquire from his captain in the fighting formations and in the firing exercises. It is only in later years, when the officer serves in responsible posts, and his views have become enlightened by experience, that the study of tactics becomes justified and of value.

7. Hand-in-hand with the instruction at the Academy in the science of artillery, arms, etc., go special courses in gunnery, torpedo, and infantry duties. This plan has arisen from the recognition of the principle that the best training lies in practice; and that practical instruction carried out as closely as practicable as in war, impresses itself much more forcibly than wearisome theoretical dissertations, even if accompanied by diagrams, models, etc. We ask then, Would it not be advisable to restrict the theoretical instruction in gunnery to what is strictly necessary, and to leave the knowledge of materials to the special courses? Most certainly the gunnery and torpedo instruction at the Academy could be materially curtailed in this direction. The same might also be done in land tactics and fortification, for both these subjects are of lesser value to the future naval officer, and all practical requirements in this direction could be sufficiently met by a well-planned special course in infantry duties. Finally, one subject of the instruction in weapons—mining—can, in our opinion, be entirely dispensed with. Those officers who are appointed to seamen-gunner divisions or to the mining school-ship, will quickly pick up the subject without being instructed in it at the Naval Academy. If, however, it is considered necessary that every executive officer should have a general idea of mining, such may be obtained by a special fourteen days' course in connection with the gunnery course, or with the 1st seamen-gunner division, better and more thoroughly than would be possible by teaching it for six months at the Academy.

8. We now turn to two subjects which, in recent times, have gained in importance for the young naval officer, viz., the construction of ships and acquaintance with machinery. Would it not be as well that the pupil should, above all, receive practical instruction in these subjects? Why should we not also have special courses in both? The difficulties in carrying out such an idea are not very great. The ensigns might remain at the Naval Academy whilst the practical courses were being held at the dockyard and on board the ships and torpedo-boats lying there. A special course in machinery would not be quite so easy to arrange, since ships belonging to the active battle fleet and to the reserve fleet would not be available; the training would have to be carried out in hulks. It would be necessary, however, to lend, during part of the course, a cruiser with modern boilers and engines, so that trips might be made out to sea; for only in this way could a practical result be expected from the special course.

9. If we sum up the advantages to be derived from the above proposals we arrive at the following conclusion:—

- a. The main feature of the Naval Academy lies in scientific training. The following subjects are consequently concerned: navigation, mathematics, physics, foreign languages, naval history, and geography.
- b. Seamanship, as well as the purely naval and technical subjects, should be restricted to what is absolutely necessary. Instruction in these subjects should merely serve to recall and

slightly extend what has been learnt on the midshipman's training-ship and to prepare for the special courses.

- c. The special courses are a necessary complement of the instruction in the purely naval and technical subjects and should make the ensign acquainted with all the requirements of practical duty.

10. In order to carry out such a re-organisation (fusion) of the instruction at the Naval Academy and in the special courses as is suggested, it is unavoidable that the total period of training should be lengthened. The Academy course cannot be put down at less than a year for what is asked for, seeing that the curtailments proposed in the military and technical subjects are more than made up for by the more thorough treatment of the other scientific subjects. Again, the special courses in gunnery, torpedo, and infantry duties must last three months, two, and one respectively. The total training period must therefore be extended to take in the special courses of instruction in ship-building and knowledge of machinery; if one month is reckoned as being necessary for the former and $1\frac{1}{2}$ months for the latter subject, the ensigns, instead of being ready for distribution among the battle-ships and cruisers on 1st October, will be ready on the ensuing 1st January. This would not be too great a sacrifice to make if we reflect that the thorough technical training of the ensign ensures practical knowledge, which becomes specially valuable in carrying out the military and nautical duties on board modern ships with their many mechanical arrangements.

11. Together with the theoretical training at the Academy, considerable attention is paid to physical training in gymnastics, fencing, riding, swimming, etc. It cannot be denied that considerable progress has been made in physical training, but still not sufficient. In this matter the English educational system might well serve us as a pattern. It is not merely a question of making young officers physically active during their short period of training, but of fostering in them a liking for physical exercise and games so that they shall continue to keep them up during the remainder of their service as officers. We must, therefore, not be satisfied with the standard already attained; hand-in-hand with the fostering of games, which is now extending in the gymnasiums and Realschule, it should be the aim of the Naval Academy to still further develop and cultivate the taste for exercise; with the assistance of suitable naval officers as instructors this might be attained without difficulty. Fencing and gymnastics on board ship and on shore are, for the most part, only kept up during subsequent years by those who are adepts, whereas games, as followed in the English Navy, afford a ready means to combat that physical indolence which life on board ship tends to induce by keeping the body fresh and supple.

12. After $2\frac{1}{2}$ years' preparatory training in the training-ship, at the Naval Academy, and in special courses, the ensign is appointed to a battle-ship or cruiser serving either abroad or in home waters, in order to become conversant with practical duties. The first year's service on

board is to a certain extent still a period of schooling. Captain and officers look upon it as a duty to instruct the ensign in practical duties and to influence him by precept and example, but the theoretical instruction ceases entirely. After this year of duty on board a modern war-ship his training is ended, and his promotion to lieutenant at the end of that term announces that henceforth the late scholar can as an officer be profitably employed in carrying out the multifarious duties of the ship. *But will the lieutenant come up to this expectation?* This question is one that we shall only be able to answer after the experience of the next few years. There is still one point worth considering. The seniority of the lieutenant is determined by the certificate of service obtained after this year together with the certificate previously gained. It is however expressly laid down that the lieutenant shall remain a further year on board the same ship. Why then renounce the means to influence the zeal and conduct of the young officers during their second year's service on board? It is not possible in a single year as ensign that the important details of gunnery and torpedo duties, more especially of navigation, could be acquired by each individual with that thoroughness which is demanded in practice for the efficient and perfect execution of those responsible duties. In the course of two years, however, a more effectual programme could be carried through, so that each individual young officer would have the opportunity of devoting more time to the several branches of the Service. For instance, we take it that every young officer should be employed for at least three or four months in the post of navigating, midshipman: a requirement which is all the more necessary, because—unlike what is the case in England—in our Navy no special course exists for this important subject. Whether the young officer wears the uniform of an ensign or of a lieutenant is of little practical consequence; but taking into consideration the want of officers, it is questionable whether it would not be better to promote the ensign to officer directly he is appointed. The main point however is that the young executive officer should continue to be systematically trained not only during his first year, but also during his second year on board and that he should only receive his certificate of service which determines his final position after this two years' practical experience. Such a plan we believe would be attended with good results, and we think officers so prepared when they step into the responsible duties of a ship of war after nearly five years' training would be equal to all requirements. One more condition still remains. The practical schooling on board the sea-going ship must be utilised by the captain and the older officers in a spirit of good-fellowship so as to develop character cultivation and good form in the young officers. As the intimate and continued social bonds which exist in the Army are absent from the Navy, it is essential that the bonds of good-fellowship should be drawn together from the first, thereby laying the foundation stone for the close cementing of the corps of naval officers. *Only a corps which feels itself one in knowledge, and which works unceasingly during peace towards its own professional advancement and that of its subordinates, can hope to pluck the fruits of its long-continued labours and to attain victory when the time of struggle arrives.*

THE SOUTH AFRICAN WAR OF 1899-1900.

Translated by permission from the "Jahrbücher für die Deutsche Armee und Marine."

(Continued from September JOURNAL, page 1119.)

PART IX.

LORD ROBERTS' OPERATIONS UP TO THE OCCUPATION OF BLOEMFONTEIN
—PAUSE IN THE OPERATIONS—PEACE NEGOTIATIONS.

Lord Roberts landed in Cape Town with his staff on the 10th January. From the information there received, the state of affairs appeared to be as follows:—

In Natal.—Buller in vain attempting to relieve White. Opposed to him, the main body of the Transvaal and Orange Boers.

At Sterkstroom and Colesberg.—Gatacre and French were filling in the time with a lot of outpost skirmishes, which recall the good old times of the cordon system. French certainly displayed a high degree of skill and enterprise, but he had opposed to him De Wet, the smartest of the Boer leaders; so that, after a successful dash at Colesberg, he fell back on his starting point, Arundel.

To the west, on the Modder River, Methuen, with a force of demoralised mercenaries, filled with hatred of their leader, still held on to his exposed post.

Kimberley and Mafeking were holding out, although the garrisons were suffering severely and were short of the necessities of life. An attempt to relieve Mafeking from Rhodesia, made by Colonel Plumer, was repulsed.

The clear-sighted Roberts immediately perceived the critical point, namely, Modder River.

A forward movement of the Boers here would mean the loss of a whole division, besides the main artery by which the reinforcements were to be brought up, namely, the railway from Cape Town to Kimberley and Mafeking. Moreover, French's opponent, De Wet, who was only three marches from the railway, was another element of danger.

Roberts makes up his mind, and carries his scheme through with remarkable quickness and decision. His plan is to advance with his main body by Orange River Station on Bloemfontein, and thus relieve both Methuen and Kimberley at one and the same time. In the meantime Buller is to hold the main body of the Boers in Natal as long as

possible by repeated and energetic attempts to relieve Ladysmith. The force at Colesberg is to be strengthened, partly to keep De Wet in check, and partly to deceive the enemy as to the time and direction of the advance. And finally Methuen receives orders to detail flying columns to keep clear the important section of railway between Cape Town and Kimberley.

In drawing up his plan of operations, Roberts attached the greatest importance to securing favourable conditions to fight under. This he accomplished as soon as he had succeeded in shifting the theatre of war to the flat open country of the Orange Free State. So soon as he had penetrated there, he obliged all the Boer detachments to fall back in the same direction in order to get in front of him. With luck, he might be able to cut up the Boer detachments in detail while attempting to concentrate; and if the Boers succeeded in uniting their forces, they would at least lose their principal advantage—the power of skilfully utilising mountainous country for passive defence.

Roberts' scheme of operations was simple and sensible, and he knew his own mind. Moreover, what was far more important, his arrival restored the moral tone which the English forces had lost.

The English Army has had but little fighting to record, and accordingly it makes heroes of the few generals who have had the luck to fight a successful and decisive battle on a large scale. Such a hero was Old Bobs, and Kitchener was another. The presence of both of these men restored confidence in the leadership and in the luck of the Army, and renewed the eagerness of the troops to be up and doing.

As was to be expected from Kitchener—who had worked up to the battle of Omdurman for two years and a half beforehand—the first thing done was the careful preparation of the base and advanced bases of operations. Many thousands of transport animals were procured from all parts of the world, and huge depôts were established all along the line of operations. Not till this was done, by the end of January and the first weeks of February, did the troop-trains follow. They brought up the 6th and 7th Divisions, which had landed during January, besides several specially formed corps of Volunteers, Yeomen, and Colonials.

Here, as in the Soudan, Kitchener kept a tight hand on the reporters. So much so, that he actually succeeded—and this in a hostile country—in concealing the true intentions of the Commander-in-Chief. Even on 6th February, when Roberts with his staff started from Cape Town, not even the very much disgusted reporters knew whether his destination was Sterkstroom, Colesberg, or Modder River.

Even De Wet had only discovered that his old opponent French had been reinforced by fresh infantry. It was noticed that the English cavalry were now withdrawn behind the fighting front, but he ascribed this to the exhaustion of their horses, which required them to be rested. Not till the second week in February did he discover that French himself with his cavalry had moved off by forced marches to Hopetown. On learning this, De Wet certainly lost no further time. He attacked

French's successor (Clements) and drove him back, between 12th and 15th February, on Arundel. But in the meantime the whole military situation had been changed, and partial successes were comparatively unimportant. It would appear that both Kruger and Steyn were led astray by the early reinforcements of the troops at Colesberg, by Buller's increased activity, and by a series of purposely issued false reports; for up to the middle of February, Cronje, who commanded before Kimberley, had not been reinforced by a single man. He now found himself with 6,000 men opposed to a force of nearly 40,000. The composition of the latter force is given in the attached table.

At the beginning of February the situation at Kimberley was still unchanged. Cronje stood fast in his strong position between Spytfontein and Magersfontein. When he heard of the reinforcements on the Modder River, he thought that Roberts, like Methuen, would attack his position. Roberts was not so obliging. He left Methuen's force (now reduced to two brigades, without the Highlanders) in position opposite Cronje, and behind this front line of troops he marched off to the right towards Bloemfontein. French's cavalry division was on the 12th February at Ramdam, some 20 miles east of Graspan, and had on the same day captured Waterval ford over the Riet from a small Boer detachment. By the evening of the 13th the smart cavalry general had crossed the Modder River from Klip Drift (some 12 miles east of Magersfontein and 20 miles south-east of Kimberley) and his patrols were in touch with Cronje's position and with the troops forming the cordon round Kimberley. This cordon was found to be very weak.

















As French had to hold the ford for the main body, which followed by the same route in three echelons (the 6th, 9th, and 7th Divisions), he waited till the first echelon arrived on 14th February. Early on the 15th, as soon as Kelly-Kenny arrived, he advanced, rode boldly past Cronje's left wing, broke through the cordon of investment without much trouble, and rode into Kimberley.

As may be imagined, Cronje was taken by surprise by this revolution in the English methods. After having been opposed to Methuen for several months he could not credit the existence of English cavalry squadrons capable of marching 30 to 40 miles a day, and English infantry battalions independent of the railway and able to move across country.¹ He was suddenly convinced by the relief of Kimberley on the evening of 15th February. In the night of the 16th he broke up his camp and started off with men, horses, and baggage across country. He marched to the eastwards, keeping to the north of the Modder Valley, meaning to break through between French's cavalry division and the head of Roberts' force, and so reach Bloemfontein.

In the meantime, as was but natural, French in Kimberley had been involved in the festivities and rejoicings which followed the relief of the

¹ According to the letters of an Austrian officer (Count Sternberg) which have appeared in the Press, Cronje refused to believe even the reports of his advanced detachments, who had been forced by the advance of the strong English columns to abandon their posts on the Riet and Modder River fords.

COMPOSITION OF LORD ROBERTS' DIVISION.

<i>6th Division (Kelly-Kenny).</i>		<i>1st Division (Mathew).</i>	
13th Brig. (Wavell).		20th Brig. (Paget).	
12th Brig. (Clements).		1st Brig. (Douglas).	
<i>9th Division (Cubitt).¹</i>		<i>7th Division (Tucker).</i>	
19th Brig. (Smith-Dorrien).		15th Brig. (Knox).	
3rd Brig. (MacDonald).		14th Brig. (Maxwell).	
<i>Hamilton's Mounted Infantry Division.</i>		<i>Half 10th Division (Hunter).⁴</i>	
2nd Brig. (Ridley).		5th Brig. (Hart).	
1st Brig. (Hutton).		<i>French's Cavalry Division.</i>	
<i>Dickson's Cavalry Brig.</i>		<i>French's Cavalry Division.</i>	
<i>Dickson's Cavalry Brig.</i>		3rd Cav. Brig. (Gordon).	
<i>Brabant's Horse.</i>		2nd Cav. Brig. (Broadwood).	
<i>35 Heavy Guns.</i>		1st Cav. Brig. (Porter).	
<i>64 Maxims.</i>		<i>Troops on Line of Commns.</i>	
<i>36 Heavy Guns.</i>		30 Militia Battns.	
<i>8 H. A. Batteries.</i>		80,000 men.	
<i>24 Field Batteries.</i>		<i>Re-organised at Bloemfontein.</i>	
<i>3rd Cav. Brig. (Gordon).</i>		<i>Transferred from Natal.</i>	

¹ Re-organised at Modder River.

² Arrived from England at the beginning of April.

³ Re-organised at Bloemfontein.

⁴ Transferred from Natal.

town. He had also engaged in the pursuit of the weak besieging force, which had drawn off to the north. The result of all this was that Cronje had twenty-four hours clear start.

During several peaceful months of life in camp the Boers had accumulated an inordinate amount of baggage. The greater part of them had sent for their wives and children. They could not make up their minds to abandon this mass of ox-wagons. The result was that the pace of the retreat did not exceed $1\frac{1}{2}$ to 2 miles an hour! There was no water to be had on the high ground, so they were forced to keep close to the river. And so the huge caravan was obliged to march right across the front of the English advanced guard at a few miles distance. And this was successfully carried out, although in crossing the sandy plain they threw up more dust than Cronje liked. Kitchener himself was with the advanced guard, and understood the meaning of this huge cloud of dust. He despatched half of Kelly-Kenny's division, which had already crossed the Modder, to follow up Cronje along the north bank. The other half was to march in a parallel direction along the south bank and so overtake Cronje.

Cronje's animals were so exhausted that he was forced to halt on the evening of 16th February near Driput Farm, after marching only 20 miles. Accordingly, his pursuers very soon got into touch with him. He managed, however, by holding skilfully selected rear-guard positions to keep off his adversaries till nightfall. After the animals had been out-spanned for a short time and had been watered, he continued his march the same night along the north bank, intending to cross at Wolvekraal (12 miles distant) to the south side, and so to get on to the main road to Bloemfontein.

If the Boers had been able to make up their minds to abandon the whole of their remaining baggage here,¹ Cronje's daring attempt would even then have succeeded, and the catastrophe would have been avoided.

Early on the 17th, Kitchener ordered the detachment pursuing Cronje along the north bank to cross over to the south bank, after they had marched about 6 miles. This gave Cronje a start, in spite of his very slow progress. And, in fact, he would have got clear away from his pursuers if Kitchener's order directing the 6th Division to cross back again to the north bank had been carried out.

The strategical soundness of the original plan of marching the main body along the south bank of the river in order to overtake Cronje is all the more apparent, since Cronje was forced to cross to the south bank in order to reach his objective. Kitchener's idea of transferring the whole force to the north bank is, therefore, difficult to account for. It is not to be credited of a man like Kitchener that his object was to fall on the enemy's flank; for, in the first place, the flank of a column of mounted sharpshooters is never exposed; and, in the second place, it is hardly wise to cross a difficult ford in face of an enemy in column of route, who has only to turn to a flank in order to form front at a moment's notice.

¹ They had to leave part of it behind on account of the exhaustion of the draught animals.

However this may be, the head of the English force fortunately missed the ford, if it ever existed. They continued along the south bank, and on the evening of the 17th they were surprised and delighted to find themselves right opposite Cronje's camp. His animals were so exhausted that he was unable to cross the ford at Wolvekraal and get on to the Bloemfontein road.

In the meantime, French had remembered the real object of his march, and on hearing of Cronje's daring retreat to a flank he had recovered the ground he had lost by a very remarkable forced march of some 40 miles. Cronje was, therefore, overtaken on the north bank as well. And when in the night of the 17th-18th the English second echelon, the 9th Division, came up on both sides of the river, he found himself on the morning of the 18th completely surrounded. Kitchener thought it advisable to take advantage of the surprise and to attack at once. But during the night the Boers had so thoroughly entrenched themselves round their laager that the English attack was repulsed with heavy loss. In the meantime, Roberts, with the 7th Division, had become entangled in an action with De Wet, the since celebrated Boer leader, who had hurried from Colesberg. De Wet had cut off the whole second echelon of the divisional supplies at Waterval Drift on the Riet (the first echelons were with the troops), and succeeded in defending, with some 100 men, his booty against the whole 7th Division, who had hastened back to meet him.

Roberts preferred to put up with the loss of several days' supplies rather than to fail in his main enterprise; he therefore left De Wet in possession of the convoy and marched on to Wolvekraal Drift, arriving on the 19th. In view of the heavy losses on the 18th, and as, according to his calculations, no reinforcements for Cronje could be expected immediately from Natal, Roberts resolved gradually to reduce the already invested enemy by artillery fire. As the Boer wagon laager, which stood on high ground, was reduced to ashes on the first day of the bombardment, and as the air of the camp was poisoned with the dead bodies of animals, the English expected an early capitulation. But Cronje and his men held out with a heroic tenacity which will be famous for all time. The English were puzzled. So long as the fire of the artillery continued, not a Boer was to be seen; but as soon as the infantry attempted to advance, they were received with a well-aimed fire by the Boers. It was not till several days later that the captive balloon, which had ascended close by, discovered the hiding-places of the Boers; they had dug out bomb-proof shelters in the steep banks of the river. These holes could not be reached by flat trajectory field guns, and up to the 26th February only one howitzer battery was up; after this date there were two howitzer batteries. As the bombardment proved insufficient, Roberts ordered a regular attack. Several small attempts to relieve Cronje had been made since the 21st. The Boer commandoes which had retreated northwards from Kimberley attempted to join hands with Cronje from the north, and the indefatigable De Wet from the south; both of these were in communication

with Cronje by heliograph. These attempts proved ineffectual; but on the other hand, several detachments of Cronje's force managed to cut their way out without great loss.

Strong relief columns were on their way from Natal, but arrived too late.¹ On the evening of the 26th the English approaches were close to the Boer shelters; food and ammunition were failing in the Boer laager, the water was poisoned by the bodies of the animals, and the air was so foul that it could hardly be breathed. Under these circumstances Cronje resolved to surrender, and hoisted the white flag early on the 27th. Nearly 4,000 men and six guns fell into the hands of the English.

Roberts was proud of his success, and sent a dignified telegram to the War Office: "I hope that Her Majesty's Government will consider this event, which has occurred on the anniversary of Majuba, satisfactory." Strange that it should be fated that the victor at Majuba should have to lay down his arms nineteen years later before the man who was even then selected to be the avenger of English military honour!

The road to Bloemfontein (five marches) now lay open before Roberts. The small force of 5,000 men which De Wet and Delarey had collected at Kaalspruit, halfway to Bloemfontein, could not seriously check his advance. It was more than probable that an immediate advance would place the capital of the Orange Free State in the hands of the English before the Boer forces could arrive from Natal to defend it.

But the loss of the second echelon of the transport train had resulted in a serious shortness of supplies, and forced Roberts to halt for another eight days. It was not till the 7th March that supplies had been brought up from Modder River Station, and that the advance, could be continued by short stages. On the first day of the advance the enemy, who had in the meantime been reinforced, was encountered at Poplar Grove. The ground did not favour the Boers, and they retreated on seeing the English form up for attack in three columns, and threaten their right flank with the cavalry division, strongly supported by artillery. There was no more fighting till the 10th March, on the heights of Driefontein. Although the cavalry soon dislodged the Boers' right flank and took them in reverse, the Boer centre held out till late in the evening. Under cover of darkness they then drew off to the north-east, in spite of the presence of the English cavalry, whose horses' legs were about worn out. Even French's reckless energy could no longer require his exhausted troops to attempt a fatiguing pursuit.

The further advance across the barren sandy plains was rendered more difficult by the heat of the weather. An idea may be formed of the severity of the heat from the fact that the whole army found it necessary to abandon the high road and to make a detour to the south-east along Kaalspruit, merely in order to keep close to the water.

After a few skirmishes south of Bloemfontein, Roberts, on the 13th March, entered the capital of the Orange Free State. On the previous

¹ From Natal to Wolvekraal is about twenty marches.

day Steyn had left the town and had transferred the seat of Government to Kroonstadt. At a conference between the two Presidents it was decided to carry on the defence of the country in the mountains of Winburg and Kroonstadt. Since the Boer commandoes from Natal had arrived too late to effect a junction with Cronje, and since the open country in the south of the Orange Free State did not suit the Boer tactics, this decision seems based on a cool and intelligent view of the situation. Even if the moral effect of the first great defeat contributed to this decision, this was only natural.

Roberts' next care was the establishment of his new base and the shifting of his line of communications.

The former line from Cape Town *via* Modder River, including a stage of a hundred miles by road, was unsafe and unduly long. The railways from East London and Port Elizabeth, which unite at Springfontein, formed the natural line of communications for the new base. But there were still Boer commandoes stationed on these railways at Colesberg and Stormberg, which gave the English detachments there plenty to do. Roberts therefore sent back Pole-Carew's division along the railway to the important junction of Springfontein, in order to co-operate with Gatacre in clearing the railway line. The Boers, to avoid being caught between two fires, withdrew to the north-west along the mountains of the Basutoland frontier, after a sharp rear-guard action on the Orange River, in which they inflicted yet another defeat on the unfortunate Gatacre.¹ Fortunately for the English, the Boers had omitted, here as elsewhere, to thoroughly destroy the railway. They had only blown up the bridges over the Orange River, and removed most of the rolling stock for safety to the north.²

Roberts' next tasks were: First, to get the army fit for service again. This entailed the replacement of almost the whole of the horses of the mounted branches. Next, the re-organisation of the army as strengthened by the latest reinforcements. These included the 8th Division, Militia battalions, and Volunteers from England and the Colonies. And finally, the taking over of the recently conquered districts.

These tasks required all the energy of the headquarter staff for several weeks. The necessary consequence was a pause in the campaign, which lasted nearly seven weeks. It was during this pause that the overtures for peace were made by both Presidents; and it was at this time that America offered to intervene, and that the Boer delegates made their fruitless tour through Europe and America. (Here follows the correspondence between the Boer Presidents and Lord Salisbury, published in Blue Book 261, July, 1900, page 20.)

¹ Gatacre was recalled on the 9th April. Colonel Thorneycroft, of Spion Kop fame, had already been retired from the Army.

² On the other hand, a quantity of railway material fell into the hands of the English at Johannesburg.

PART X.

BULLER'S FOURTH ATTEMPT TO RELIEVE LADYSMITH—THE VOLUNTARY RETREAT OF THE BOERS FROM NATAL AND THE ABANDONMENT OF THE SIEGE OF LADYSMITH.

We must briefly relate the occurrences in Natal during February and March. It is not officially known whether Buller was ordered by the Commander-in-Chief to resume his relief attempts on 10th February, but this appears probable. For it was just from 10th February, on which day Roberts' operations began, that it was necessary to hold as many Boers as possible at the eastern theatre of war. On the same day, 10th February, Joubert, who had recovered, held a council of war. He asked the council to decide whether it would not be better to make a fresh attempt to take Ladysmith by assault. The result confirmed Frederick the Great's dictum, that a council of war never fights.

The effect may be imagined which the fall of Ladysmith would have produced upon Roberts' operations. If the defenders of Ladysmith showed no better physique and *moral* than they did a few weeks later, they would have been incapable of resisting a well-planned assault in force.

And this again must be counted as one of the many sins of omission of the Boers. Perhaps a De Wet or a Botha would have been better able to influence the council of war than the old and infirm Joubert.

We have seen that Buller in his relief attempts first tried an out-flanking movement to the right, then to the left, and then tried to break through the centre. At his fourth and last attempt he again tried to work round to the right. His objective was Hlangwane Hill, referred to in the account of the first attempt, and the foot-hills to the south and east of it.

Long before the necessary preparations and placing in position of troops and heavy guns had been completed with the usual publicity, the Boers had divined Buller's intention and had prolonged their left flank several miles to the eastwards.

On 14th February the English first took possession of a hill south of Hlangwane, and on the 15th they crowned it with heavy artillery and opened fire at a distance of 3 or 4 miles on the supposed position of the Boer defences.

On 16th, 17th, and 18th February, after protracted fighting, in which almost the whole of Buller's division took part, the eastern foot-hills of Hlangwane were carried. On the 17th Hlangwane itself and the village of Colenso were taken, and the artillery placed in position on the heights nearest the enemy. A pontoon bridge was thrown over the Tugela, and the troops again drawn up among the hillocks on the left bank, with Fort Wylie as a centre.

The enemy was supposed to be on Grobler's Kloof and on the ranges of hills connected with this to the north. On 21st, 22nd, 23rd, and 24th February Buller repeated the almost incredible experiment of sending each of his brigades separately, without any co operation with the others, against Grobler's Kloof.

On each occasion the English attack was repulsed with great slaughter. The loss in officers was especially heavy (112 officers and about 2,000 men). This failure is all the more disgraceful, that only a weak Boer rear guard was now opposed to the English. Moreover, after several months' experience, Buller ought at last to have perceived the ineptitude of such tactics.

Buller's experience resembled that of the generals of the Allied Army when opposed to the light infantry of the French Republican Army. Thus in 1794 Duke Albert of Sachsen-Teschen wrote, despairingly, to the Emperor:—"This tirailleur work enlivens the French and utterly disgusts our men." It does not seem to have occurred to anyone to use at least the light infantry for rifle tactics.

Buller's troops were so exhausted and discouraged after eleven days of unprofitable fighting, that he was glad when the Boers allowed him a day's armistice on the 25th.

In the meantime the Boers were busy moving off. The Free Staters had begun their retreat as soon as they heard of Roberts' advance—that is, on the 12th February—and were now at the Drakensberg passes. The Transvaalers had sent their baggage north under a strong escort, and utilised the day's armistice to withdraw their heavy guns in safety.

On the evening of the 25th the Boer rear guard made a sham attack, causing Buller to withdraw the whole of his troops over the Tugela and to dismantle the bridge. Two days—the 26th and 27th February—passed before the English crossed the river lower down by a fresh bridge and occupied the heights, now only held by weak Boer posts. The Boer main body had retreated three days before.

When on the 28th February Buller sent out his cavalry leader, Dundonald, to the north, the latter found the whole country clear of enemies, and to his great astonishment was able to march into Ladysmith. The garrison were no less astonished; in their apathy they had not discovered that the Boers had retreated.

This being so, it follows that Ladysmith was never relieved at all, but that the Boers voluntarily raised the siege.

The four futile attempts to relieve Ladysmith had cost altogether more than 5,000 men. Like Roberts' division, Buller's division was not fit for service for some time—in fact, not till the 9th May.

The garrison of Ladysmith were still less fit for service. The numbers had diminished during the last four months from 13,500 to about 10,000. 10,680 had been in hospital, and 2,000 were still under treatment. Of more than 5,000 horses hardly 500 were fit for duty. An idea of the state of efficiency of White's troops may be formed from these figures.

By the middle of March the situation was as follows:—

Buller with 27,000 men about Ladysmith; opposed to him Joubert, entrenched in the Biggarsberg and the passes about Laing's Nek; single Free State commandoes in the Drakensberg passes.

Roberts with 30,000 men at Bloemfontein; opposed to him Botha in the Winburg and Kroonstadt mountains.

Gatacre, Brabant, and Clements were marching up with 8,000 men from the Orange River; opposed to them De Wet and Delarey.

In the western provinces the Afrikanders, curiously enough, selected this moment of depression for a rising. Lord Methuen with his 8,000 men therefore had his hands full. Moreover, until the railway bridges over the Orange River were repaired, Modder River Station was a principal depôt on the line of communications, and therefore required to be specially watched during the rising. Under these circumstances, an advance of the western army to relieve Mafeking was not to be thought of. Moreover, the attempt to cross the Vaal with a flying column at Warrenton failed, owing to the resistance of the Boers and the want of pontoons.

Nearly 70,000 men were distributed along the line of communications.

Therefore, although by the middle of March England had 150,000 men in the field, it was for many weeks impossible to continue the operations to complete the subjugation of the Boers.

In the meantime Roberts did his best by proclamations¹ and by the use of England's most powerful weapon—namely, money—to complete the practical pacification of the Orange Free State and to renew friendly relations with the Basutos.²

(To be continued.)

¹ Blue Book 261, p. 61, *et seq.*

² Blue Book 281, pp. 46 and 52.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Rear-Admiral—H. T. Grenfell, C.M.G., to be second-in-command in China; Sir Baldwin Wake Walker, Bart., C.M.G., to be second-in-command of Reserve Squadron. Captains—H. L. Fleet to "Empress of India"; H. P. Williams to "Brilliant."

Rear-Admiral H. T. Grenfell, C.M.G., who succeeds Rear-Admiral Sir J. A. T. Bruce, K.C.M.G., as second-in-command on the China station, will hoist his flag on board the new first-class battle-ship "Albion," which has recently joined the squadron from home. Rear-Admiral Sir Baldwin Wake Walker, Bart., C.M.G., has hoisted his flag on board the "Sans Pareil" as second-in-command of the Reserve Squadron during its forthcoming cruise: the squadron assembled at Portland on the 8th inst. The Mediterranean and Channel Squadrons, which had combined on 31st August off the Tagus for tactical exercises under the command of Vice-Admiral Sir J. Fisher, parted company again on the 12th ult., the Mediterranean Squadron returning to that station, and the Channel Squadron proceeding first to Gibraltar and then to Berchaven. The new first-class battle-ship "Implacable" left for the Mediterranean on the 29th ult., arriving at Gibraltar on the 3rd inst., where she relieved the "Empress of India," which left for England the same day and arrived at Plymouth on the 7th inst.; the "Empress of India" paid off all standing at Devonport on the 12th inst., and the same day the officers and men of the "Howe," port-guard-ship at Queenstown, were transferred to her, as she is to take the place of the latter ship, which has been placed in the D division of the Reserve. The "Resolution" arrived at Spithead on the 22nd ult. from the Channel Squadron; she is to pay off at Portsmouth, her officers and crew turning over to the new first-class battle-ship "Formidable," which is to proceed to the Mediterranean; the officers and crew of the second-class battle-ship "Colossus," coast-guard-ship at Holyhead, are to turn over to the "Resolution," the orders for that ship to take the place of the "Trafalgar" at Portsmouth having been countermanded. The first-class cruiser "Amphitrite" and the second-class cruiser "Iphigenia," commissioned at Chatham and Portsmouth respectively for relief service in the Mediterranean; both ships left England on the 28th for Malta, the "Amphitrite" taking out a new crew for the "Illustrious," which will pay off and recommission at Malta. The second-class cruiser "Brilliant" commissioned at Portsmouth and is to be attached to the Training Squadron. On the 19th ult. H.M.S. "Centurion" was paid off at Portsmouth. Six more destroyers, the "Kangaroo," "Myrmidon," "Desperate," "Ariel," "Seal," and "Chamois," have been sent to strengthen the fleet in the Mediterranean.

The Loss of the "Cobra."—We regret to have to chronicle the loss of the new turbine-engined destroyer "Cobra" on the morning of the 19th ult. off the Lincolnshire coast, when on her passage from the Tyne to Portsmouth. She seems to have broken her back amidships in the heavy cross sea which was running at the time; but the court-martial, which has been sitting at Portsmouth to investigate the cause of the disaster, has not yet given its verdict. At the time of her foundering there were 79 officers and men on board, including several of the contractors' men; Lieutenant Bosworth Smith and 66 men were drowned; the Chief Engineer, Mr. Percy, and 11 men being the only survivors.

There have been only two torpedo-boat destroyers built for the Navy fitted with Parson's steam turbines, and both have now been lost. The "Viper," it will be

remembered, was commissioned for the first time to take part in the August manoeuvres, after having been subjected to numerous trials, and was wrecked while being chased in the vicinity of the Channel Islands. The "Cobra" is her sister ship, and was on her way to Portsmouth from Elswick to be prepared for commissioning. She was subjected to numerous trials at the instance of the Admiralty after her completion early last year, and has been claimed to be the fastest vessel afloat. During May of last year the "Viper" attained a speed of 35 knots, though her contract speed was only 31 knots, and it was then believed that the highest possible speed had been attained. In June the "Cobra" was tried, and on a three hours' run off the Tyne made a maximum speed of 35.6 knots, and a mean rate of 34.3 knots per hour. During some special trials made in July the "Viper" did 37.11 knots, or at the rate of 43 land miles, per hour, and the "Cobra" was considered to be quite capable of accomplishing the same speed. She was built by Sir W. G. Armstrong, Mitchell & Co., and her length was 223 feet and beam 20.5 feet. She had a displacement of 325 tons, and drew 8.2 feet of water. She was supplied with one 12-pounder and five 6-pounder Q.F. guns, and two single training torpedo-tubes for 18-inch torpedoes. Her complement was 68 officers and men, and her coal capacity 85 tons. Her contract speed, with an I.H.P. of 11,500, was 35.8 knots. She was fitted with Yarrow water-tube boilers.

The "Cobra," though nominally sister ship to the "Viper," was really 15 feet longer and of many tons more displacement. She had, however, identical engines, and though she would have proved a slightly slower ship, she possessed the same qualities of steadiness and high speed as her unfortunate predecessor.

The New Submarine Flotilla.—The torpedo-gunboat "Hazard" has been commissioned by Captain R. H. S. Bacon, D.S.O., for special service with submarine boats, and the first of the five vessels of this class which are being built for the British Navy was launched on the 2nd inst. from the yard of Messrs. Vickers at Barrow. A description of the latest "Holland" type—the type chosen by the Admiralty for the first five—will be of interest. The length is 63 feet 4 inches, beam 11 feet 9 inches, and displacement when submerged 120 tons. The plating and frames are of steel of sufficient size and thickness to withstand the pressure of depths not over 100 feet. The bulkheads are located so as to provide safety in the event of collision and to stiffen the hull as a whole. Decks are provided throughout the entire length of the interior of the vessel, and are combined with beams and floors to carry the weight of machinery. The water-tanks for the submersion are of steel, braced, stiffened, riveted, and caulked absolutely tight. A superstructure is provided which serves as an above-water deck when the vessel is light for surface running. The deck is 31 feet long, and on it are stowed anchors and lines; it also affords mooring facilities for the vessel. The conning-tower is of armoured steel, its outside diameter is 32 inches, and its minimum thickness 4 inches. It is provided with ports for observation and for navigation. The main engine is of the gasoline type, 160-H.P., for surface propulsion. The fuel supply allows of a maximum run of 400 knots, and its maximum speed on the surface is about 8 knots per hour. For under-water propulsion an electric motor is provided, giving the vessel a speed of 7 knots per hour submerged: the storage battery has a capacity for four hours at 7 knots per hour. The ballasting system consists of apparatus and means for quickly changing the vessel from the light to the diving condition or the reverse; automatic means of keeping displacement constant in different waters; means of compensation for variable weights installed, and all weights expended, such as torpedoes, etc. Compressed air is stored aboard the vessel and is used for breathing purposes when running submerged. Above-water ventilators provide for the circulation of outside air throughout the vessel. For steering and diving engines are provided with automatic means of moving rudders to the desired positions, and automatic means of preventing the vessel from inclining to excessive angles during diving or rising, to keep the depth of submergence constant, to bring the vessel to a horizontal position at the desired depth, and to prevent diving to excessive depths. The armament consists of one torpedo

expulsion tube, located at the extreme forward end of the vessel, and opening outward 2 feet below the high-water line. The vessel carries five torpedoes, each 11 feet 8 inches long.

Boiler Explosions in the Navy.—A return has been issued of the number of explosions or serious leakages in water-tube boilers which have been attended with injury or loss of life since their adoption in His Majesty's Navy, giving the type of boilers in each case :—

Ship.	Date of Accident.	Type of Boiler.	Nature of Accident.
¹ Sturgeon	Sept. 15, '94	Blechynden	Three copper tubes split. Defective material. One man injured.
² (At Contractor's works)			
¹ Sturgeon	Sept. 21, '94	Blechynden	Two copper tubes split. Defective material. Several men injured, two killed.
² (At Contractor's works)			
¹ Shark	Nov. 22, '94	Normand	One copper tube split. Defective material. Several men injured.
² (At Contractor's works)			
¹ Hornet	Feb. 23, '95	Yarrow ...	One copper tube split. Defective material. One man injured.
² Experimental on shore. Boiler not accepted by Admiralty.	Apr. 1, '95	Babcock & Wilcox	Experimental plug blew out. Five men injured, one killed.
Argonaut	Oct. 15, '98	Belleville	Joint defective ; not bolted together. Five men injured.
² (At Contractor's works)			
Ariel	Oct. 27, '98	Thornycroft	One tube drawn out of middle water chamber ; not properly fitted. Two men injured, one killed.
Terrible	Mar. 13, '99	Belleville	Tube burst due to salting up. One man killed.
Mutine	Dec. 19, '00	Belleville	Tube burst, due to obstruction. One man injured, one killed.
Daring	June 10, '01	Thornycroft	One tube drawn out of middle water collector ; cause under investigation. Four men injured, of whom one afterwards died.
Hyacinth	July 20, '01	Belleville	Tube burst. One man injured.

¹ All these were due to copper tubes and on trials before acceptance. They were due to defective material, and all copper tubes have been replaced by steel ones.

² These accidents happened at Contractor's works before delivery.

Statistical Report of the Health of the Navy for the Year 1899.—The returns for the total force serving afloat in the year 1899 may be regarded as very satisfactory. The aggregate number of cases of disease and injury recorded for the year furnishes a ratio of 879.63 per 1,000, which is the lowest obtained since the year 1856, when these reports were first published in their present form. Compared with the ratio for 1898, it shows a reduction of 26.46 per 1,000, and with that of the previous two years a reduction of 20.82.

Owing to the introduction in 1897 of a new edition of the Nomenclature of Diseases, and the consequent change in some instances in the classification of morbid conditions, the average ratios which had hitherto been shown in the tables were discontinued, but it has now become possible to make a comparison with more than one year, and consequently a biennial comparison has been instituted throughout the present report. A system of a yearly increment will be adopted in each future report until a period of ten years shall have been attained.

All the stations, excepting the North America and West Indies, Pacific, and China, show a reduction in the ratio of cases as compared with 1898.

The invaliding ratio of the total force, viz., 27·64, also shows a reduction when compared with the previous year, and with the average of the last two years, in the former case of 1·22, and in the latter of 2·78 per 1,000.

The death rate per 1,000 was 5·41, and shows an increase of ·5 per 1,000, as compared with that of 1898, which was 4·91.

One hundred and twenty-nine cases of wounds in action are returned, 24 proving fatal. One hundred and seventeen of these occurred in South Africa, and the remaining 12 during the Samoan troubles.

One case of yellow fever, which proved fatal, is reported from the South-East Coast of America station, and a fatal case of plague occurred in the East Indies.

On the Home station 11 cases of cerebro-spinal fever, all of which terminated fatally, are recorded.

Malarial fevers show a decrease, contrasted with 1898, especially on the Cape of Good Hope and West Coast of Africa station, which shows a reduction of 170·46 per 1,000 in the ratio of cases.

One case of scurvy, a disease now seldom met with in the Royal Navy, is returned. It occurred on the Cape of Good Hope and West Coast of Africa station, in the person of a krooman employed in the Island of Ascension.

The ratio per 1,000 of cases of primary and constitutional syphilis shows a reduction of 5·98 compared with the ratio for the previous year. Contrasted with the average ratios for the last two years, the former shows a reduction of 7·47, and the latter of 1·53 per 1,000. The case ratio of gonorrhœa and its sequelæ also shows a reduction, when compared with 1898, amounting to 7·36 per 1,000.

The total force in the Service afloat, corrected for time, in the year 1899, was 89,180, of whom 54,880, or 61·53 per cent., were between the ages of fifteen and twenty-five; 25,270, or 28·33 per cent., were between the ages of twenty-five and thirty-five; 7,480, or 8·38 per cent., were between the ages of thirty-five and forty-five; and 1,550, or 1·73 per cent., were forty-five years of age and upwards.

The total number of cases of disease and injury entered on the sick list was 78,446, which is the ratio of 879·63 per 1,000, being a decrease of 26·46 per 1,000 compared with the previous year, and of 20·82 per 1,000 when compared with the average ratio of the last two years.

The average number of men sick daily was 3,215·18, which is in the ratio of 35·95 per 1,000, and shows a decrease of 2·3 compared with the previous twelve months, and of 2·13 per 1,000 in comparison with the average of the last two years. The number of days' sickness on board ship and in hospital in the total force was 1,173,541, which represents an average loss of service from disease and injury of 13·15 days for each person, and shows a decrease compared with the preceding year of ·81, and of ·78 in comparison with the average of the last two years.

The total number of persons invalided was 2,465, which is in the ratio of 27·64 per 1,000, and shows a decrease of 1·22 per 1,000 compared with the previous year, and of 2·78 per 1,000 when contrasted with the average of the last two years.

Of the above total 1,760 persons were finally invalided from the Service, giving a ratio of 19·73 per 1,000, for the whole force, or 71·39 per cent. of the number invalided, showing an increase of ·94 per 1,000 compared with 1898.¹

The number of deaths was 483, which gives a ratio of 5·41 per 1,000, and exhibits an increase of ·5 per 1,000 in comparison with 1898, and of ·34 on the average of the last two years.

The average number of entries on the sick-list for disease and injury per man on the Home station was ·83; on the Mediterranean station, ·73; on the North America and West Indies station, ·91; on the South-East Coast of America station, ·82; on

¹ The first total includes men temporarily invalided from foreign stations, many of whom on arrival in England, or after treatment in home hospitals, were again able to join the active force. The number finally invalided represents the waste of the Service from this cause during the year.

the Pacific station, '85; on the Cape of Good Hope and West Coast of Africa station, '99; on the East Indies station, 1'28; on the China station, 1'1; on the Australia station, 1'07; and in the Irregular Force, '96. The average number of cases per man in the total force was '87, being 0'3 lower than in 1898.

The lowest sick-rate was on the South-East Coast of America station, and the highest on the East Indies station. The ratio per 1,000 of men sick daily on the Home station was 39'59; Mediterranean, 27'41; North America and West Indies, 32'06; South-East Coast of America, 23'83; Pacific, 27'46; Cape of Good Hope and West Coast of Africa, 30'38; East Indies, 44'01; China, 38'79; Australia, 36'63; Irregular Force, 28'34. The average ratio of sickness for the total force was 36'05 per 1,000, which is a decrease of 2'3 per 1,000 when compared with the preceding year.

The total number of persons invalided was 2,465, of whom 2,320 were invalided for disease, and 145 for injury.

The ratio of invaliding for disease alone was 26'01 per 1,000, and for injury 1'62 per 1,000.

Compared with 1898, there has been an increase in the invaliding on the Home, North America and West Indies, and China stations, and in the Irregular Force, and a decrease on all the others.

The total number of deaths was 483, and of this number 346 were due to disease, and 137 to injuries. The death-rate from disease alone was 3'87 per 1,000, and from injury 1'53 per 1,000.

Compared with the previous year, increases appear on the Home, South-East Coast of America, Pacific, Cape of Good Hope and West Coast of Africa, East Indies, and Australia stations, and decreases in the remainder, including the Irregular Force.

FRANCE.—The following are the principal appointments which have been made: Vice-Admirals—C. F. E. Marquis de Courthille to be Commander-in-Chief of the Squadron of the North; G. A. Roustan to command of the 2nd Arrondissement Maritime (Brest). Rear-Admiral—R. J. Marquis to Command of a Division of the Mediterranean Fleet. Capitaines de Vaisseau—E. A. Voieillard to "Charles Martel"; P. E. Forestier to "Amiral Baudin"; E. A. Pailhès to "Iéna"; P. L. A. Chocheprat to "Charlemagne"; G. E. D'Abouville to "Amiral Tréhouart"; J. M. Mallet to Command of Corsican Naval Division; A. Pichou to Command of Submarine Defences at Rochefort; C. P. Poidloue to "Suffren." Capitaines de Frégate—J. C. Heilmann to Command of the Submarines at Cherbourg; J. M. Lallemand to "Lance" and Command of Submarine Defences at Rochefort.—*Journal Officiel de la République Française.*

Vice-Admiral the Marquis de Courthille, the newly appointed Commander-in-Chief of the Northern Squadron, will, so it is reported, hoist his flag on board the "Formidable," a comparatively speaking old vessel, as the present flag-ship, the "Masséna," is next year to join the Mediterranean Fleet; he is succeeded in the command at Brest by Vice-Admiral Roustan, an officer who has a very high reputation and is very popular. The Second Division of the Mediterranean Squadron under the command of Rear-Admiral Aubry de la Noë, consisting of the "Charles Martel" (flag-ship), "Bouvet," and "Jauréguiberry," with the cruiser "Galilée," has returned to the Mediterranean after having taken part in the reception of the Tsar at Dunkirk; on the arrival of the division at Toulon, Rear-Admiral de la Noë hauls his flag down, being succeeded by Rear-Admiral Marquis.

During a night attack on the "Lévrier" two of the torpedo-boats of the mobile defence of Ajaccio collided; the night was dark and all lights being extinguished torpedo-boat No. 139 ran into No. 124 while steaming at a speed of 22 knots, torpedo-boat No. 99 came to the rescue and took No. 124 in tow, but she sank in deep water shortly afterwards and is completely lost; the crew were all saved. No. 139 was severely damaged but managed to get safely into harbour.

The Northern Squadron arrived at Brest from Dunkirk, on 23rd September. The complements will be reduced on 1st October, the ships being in the position of *disponibilité armée* and will pass the winter at Brest, except the armoured coast-defence battle-ships, which will proceed to Cherbourg to make good defects and will pass the winter at that port.

The submergible vessel "Sirène" of the "Narval" type has carried out a twenty-four hours' steam trial, of which twenty hours was a surface trial, and four hours a submerged trial; the results are reported to have been very satisfactory.

The trials of the cruiser "Davout" at Rochefort have been suspended on account of insufficiency of ventilation.

The first of the armoured cruisers of the new programme, the "Léon Gambetta," is to be launched at Brest on 26th October. Her displacement—12,550 tons—is greater than that of any of the French cruisers afloat, it being 1,250 tons more than the "Jeanne d'Arc." Her length is 146.50 metres (479 feet); beam, 21.40 metres (69 feet); armament, four 194-millimetre (7.63-inch) guns in pairs in two turrets, one forward and one aft; sixteen 161-millimetre (6.48-inch) guns, of which twelve are mounted in pairs in six turrets and four in armoured casemates; the light guns comprise twenty-two of 47-millimetre (1.85-inch) and two of 37-millimetre (1.45-inch). The vessel will also be furnished with four torpedo-discharges, two of which are submerged. The large turrets are armoured with 200-millimetre (7.8-inch) plates, and the smaller ones and the casemates with 140-millimetre (5.5-inch) and 120-millimetre (4.7-inch) armour respectively. The hull is protected with an armoured belt 170 millimetres (6.69 inches) thick at the water-line; above this the armour is extended up to the main deck with a reduced thickness of 56 millimetres (2.1 inches). The engines are to have 27,500 H.P., giving a speed of 22 knots, and she will carry 1,320 tons of coal, giving a radius of action of 7,500 miles at 10 knots and 1,025 miles at full speed. Her complement is fixed at 38 officers and 630 men. She is to be ready for service at the end of 1903, and the total cost is to be 29,959,300 francs (£1,198,372).

THE FRENCH NAVAL MANŒUVRES OF 1901.—A CRITICISM BY COMMANDANT VIGNOT.

TRANSLATED FROM "LA MARINE FRANÇAISE."

Programme and Object of the Manœuvres.—In France up till now there has been no official programme of the manœuvres, or at least this programme has not been communicated to the Press. It has been the same with the ships taking part in the manœuvres, the officers of which have not been kept *au courant* with what was going on. How under such conditions will the country interest itself in naval matters? Or how can the naval education of public opinion, which is so necessary, be carried on?

All the information about naval manœuvres in France comes either from foreign sources, from the revealing of official secrets, or from private letters addressed to families or friends by members of the *personnel* embarked in the ships, and sometimes from reports sent by the Admiralissimo himself to the Havas Agency, and that is all! It is by the fitting together of these pitiful means of information that independent writers have arrived at the knowledge that: the object of the manœuvres was a double one; and that the manœuvres were divided into two phases, the one strategical, the other tactical.

During the first phase the finding of the enemy, keeping in touch with him, and the best method of bringing on an action, were the objects pursued. Divided squadrons had to attempt to re-unite, while the duty of their opponents was to intercept them before they could effect a junction, and thus beat them in detail. In brief, it was the great strategical problem which formed the Order of the Day. The second phase was devoted entirely to tactics; the battle-ship squadrons and light divisions being exercised separately and then as a whole, while a careful study of the coast of Corsica and Provence both from an offensive and defensive point of view was also

made. So one sees that the object of the manœuvres was carefully laid down and the scheme carefully thought out. The general idea and the objective were both good.

The Themes of the Naval Manœuvres.—1. *The Strategic Phase*.—Four allied squadrons, two and two, represent two hostile fleets, who endeavour each to obtain the command of the western basin of the Mediterranean.

These squadrons, which we will call A, A¹, B, and C, were at the outbreak of hostilities on the morning of the 3rd July, disposed as follows :—

A in the neighbourhood of the Balearic Islands ; A¹ his ally off the coast of Spain, B at Gibraltar, and C at Corsica.

A was stronger than either B or C, but weaker than those two squadrons combined ; but on the other hand, A and A¹ together were stronger than B and C united.

A was to prevent B from effecting a junction with C, and to bring him to action as soon as possible after the commencement of hostilities. If A did not succeed in preventing the junction of B and C, they in their turn would give chase to A, which would do its best to join A¹, after which the two would fall on B and C and destroy them.

What did this theme represent ? Had it a political importance ?

In the opinion of some it represented what might happen in case of war with England—C representing the English squadron at Malta, while B was the English Channel Squadron ; A representing our Mediterranean Fleet and A¹ our Northern Squadron.

Others again held that a war with the Triple Alliance was the object in view, C representing the Italian and B the German Fleet, A and A¹ continuing to represent our Mediterranean and Northern Squadrons respectively.

À propos of this last hypothesis, the *Temps* published on 26th June last a letter, from which we give the following extract :—“ Nothing has yet been said about the theme of the manœuvres which will take place in the beginning of July between our two squadrons ; they seem, however, to have been drawn up with an eye to the position, which some twelve years ago was much discussed in consequence of a small brochure, ‘The Naval Peril,’ which was supposed to have been written by the late Admiral Aube, and which took the view very strongly that, in case of a conflict between ourselves and the Triple Alliance, a junction between the German and Italian Fleets would be a very serious matter for us. The writer of ‘Le Pêril Maritime’ pointed out that, if a German squadron slipped past our fleet watching for them off Cherbourg and steamed to the South, going at 14 knots, it could reach Tangier in 78 hours. At that port it could complete with coal and provisions, and on the fourth day, almost as soon as the telegraph had announced its arrival off the African coast, it would have entered the Mediterranean and effected its junction with the Italian Fleet. Anything may happen, especially in war. A junction of the German and Italian Fleets is extremely probable, and will certainly be the game our enemies will attempt to play.

“ We may see then the problem which our fleets in the Mediterranean have been set to work out.”

Who are right and who are wrong ? The partisans who hold that the scheme is directed against the Triple Alliance would seem to be right, for had it been against England, Admiral Gervais would have named the hostile fleets B and B¹. But we need not discuss the subject, as it matters little who the supposed adversary is. We prefer to see in these manœuvres simply a serious study of the problem how best to use our fleet for carrying out a necessary offensive strategy. At the conclusion of the first theme of the manœuvres the fleet returned to Toulon, where the powers of the port in rapidly coaling and re-equipping the ships were tested ; after which the second phase of the manœuvres, which was mainly tactical, was carried out.

2. *The Tactical Phase*.—All the ships were formed into one fleet under the immediate orders of the Admiralissimo, who directed all the movements. The junior admirals merely carried out the orders they received ; different tactical formations

were tried, among others those which were recently brought out in a work on Tactics,¹ in carrying out these various tactical exercises, Admiral Gervais wished to test the practical results of the theories of the Superior Committee on Tactics, of which he is the President.

The conclusion of the second phase consisted of an attack upon Ajaccio in the presence of some members of the Government, who were embarked upon the "Bouvet."

Composition of the Squadrons.

A and A'.

A Squadron—Vice-Admiral de Maigret.

Battle-ships—"Saint Louis," "Charlemagne," "Gaulois," "Brennus."

Armoured cruisers—"Pothuau," "Chanzy," "Latouche-Tréville."

Cruisers—"Cassard," "Duchayla," "Foudre," "Linois," "Condor."

A' Squadron—Rear-Admiral Mallarmé.

Battle-ships—"Bouvines," "Amiral-Tréhouart."

Cruiser—"Lahire."

Collier—"Japon."

These two squadrons were assisted by the *Défenses-Mobiles* of Algeria and Tunis, concentrated at Algiers, and the Toulon *Défense-Mobile*. A and A' also possessed the coasts of France and Algeria. Toulon and Algeria were considered impregnable, but ships would only remain there twenty-four hours. Oran, Philippeville, Marseilles, Port-Vendres, the Hyères Islands, and Villefranche were, relatively speaking, fortified, but were not considered strong enough to resist a serious attack by an armoured squadron.

B and C.

B Squadron—Vice-Admiral Ménard.

Battle-ships—"Masséna," "Carnot," "Hoche," "Amiral-Baudin," "Formidable," "Courbet."

Armoured cruisers—"Bruix," "Dupuy-de-Lôme."

Cruisers—"D'Assas," "Surcouf," "Cassini."

C Squadron—Rear-Admiral De la Noë.

Battle-ships—"Charles-Martel," "Jauréguiberry."

Cruisers—"Lavoisier," "Dunois."

These two squadrons were assisted by the *Défense-Mobile* of Corsica, and they also possessed the coasts of Corsica and Tunis; the coasts of Spain, the Balearic Islands, and Sardinia were neutral. Ajaccio and Bizerta were considered impregnable, but ships could only remain there twenty-four hours. Saint-Florent, Bonifacio, and Taveira were fortified and placed under the same conditions as Oran, Philippeville, etc.

Rules and General Principles.—Admiral Gervais was Umpire-in-Chief of the manoeuvres; he flew his flag on board the "Bouvet," the "Galilée" and "Hallebarde" acting as her tenders. These ships were neutral in principle, but Admiral Gervais had the right of taking part on one side or the other, so as to establish equilibrium, in case anything unexpected threatened to bring the manoeuvres to a premature close before the necessary lessons had been deduced. A number indicating her relative fighting value was assigned to each ship, as follows:—

The "Charlemagne," "Gaulois," "Saint-Louis," "Brennus" were counted as 250.

The "Charles-Martel," "Jauréguiberry," 200.

The "Masséna," "Carnot," "Bouvines," "Amiral-Tréhouart," 150.

The "Amiral-Baudin," "Formidable," "Hoche," "Courbet," 125.

The "Pothuau," "Chanzy," "Latouche-Tréville," "Bruix," "Dupuy-de-Lôme," 50.

The "Cassard," "Duchayla," "D'Assas," 25.

¹ "Die Flottenführung im Kriege auf Grund des Doppelstaffel-Systems." (The Manœuvring of a Fleet in War, based on the System of the Double-Échelon Formation.) By Captain Rudolf of the Imperial Austro-Hungarian Navy, published at Berlin.

The "Linois," "Foudre," "Lavoisier," 20.

The "Surcouf," 15.

The "Condor," "Cassini," 10.

The "Lahire," "Dunois," 5.

A and A¹ counted a total fighting value of 1,555, viz., A 1,250, A¹ 305.

B and C were reckoned at 1,375, viz., 950 for B, and 425 for C.

The speed of the ships was determined by the maximum number of boilers that each ship was free to light.

A squadron was superior in speed to B, while A¹ was inferior to B and C.

Regulations for Placing Ships out of Action.—On the hostile forces meeting, every ship had to signal her fighting value, and when within 5,000 yards fire to be opened by the discharge of a single gun.

With regard to the result of an engagement the stronger ship to keep the weaker under fire for twenty minutes at a less distance than 5,000 yards, or for ten minutes if under 3,000 yards distance, or if she crossed at under 1,500 yards. At night these distances were reduced by half.

The engagement being finished, the admiral was to determine how much the two opponents were damaged, or if one was destroyed: the victor losing a third of the military value of the vanquished, when the latter was inferior to two-thirds of the victor's, but in that case the weaker was considered destroyed. If the military value of the weaker was greater than two-thirds of the victor, the latter lost a fourth of the value of the former, which in her turn lost a third of the value of the stronger. When both adversaries were equal in strength, they each lost a fourth of their value.

So much for the guns, now for the torpedo. For a ship to be considered torpedoed it was necessary that the torpedo-boat should discharge her torpedo at a distance of not more than 400 yards and outside an angle of 30° from the line of keel of the ship attacked. If before discharging her torpedo, the torpedo-boat was under the ship's search-light for two minutes, she was considered to be destroyed.

Every ship considered torpedoed lost:—a battle-ship a quarter of her value; a first or second-class cruiser, a third; a third-class cruiser, half.

Every ship destroyed was considered out of action for 24 hours, and proceeded by signal to either a friendly port or the nearest neutral one, where instructions prepared in advance were found, and she returned a belligerent with her full fighting value; she endeavoured then to find her own side and again take part in the manoeuvres.

During engagements ships had to keep a strict account of all the munitions that would have been used, and if a ship ran out she lost all fighting value for 24 hours, which was the time considered necessary for her to replenish. The same rule applied to torpedo-boats, which had expended all their torpedoes.

Attack against the Coasts.—The secondary ports, relatively armed, which belonged either to A or B, were considered destroyed after a six hours' action with an armoured fleet representing a fighting value of over 300, or after three hours. With a squadron of higher value than 600. On the other hand, the attacking force lost 20 units each hour the action lasted. Semaphores were considered destroyed if kept under fire for half-an-hour at a distance of not more than 3,500 yards, and from that time could transmit no more reports to the ships of their side.

The Carrying out of the Operations.—On the morning of the 3rd July, A then cruising off the Balearic Islands, learnt that B was passing through the Straits of Gibraltar, A¹ at that time being also in the neighbourhood of the Rock. With regard to C, it was leaving the anchorage of Ajaccio, where the "Charles-Martel" was torpedoed by the "Gustave-Zédé." What ought A to do to prevent the junction of B and C?

1. Keep a watch on C.

2. Meet B.

Admiral de Maigret sent the "Foudre," "Linois," and two destroyers to watch C, while he left with his squadron to intercept B.

Everybody knows that it is much easier to find anything by day than by night, and it seemed most probable that Admiral de Maigret would arrange to cross B's track by day, so as to make more sure of sighting him. It was sufficient at first sight to credit B with steaming at full speed and to calculate where that speed would place him by 6 o'clock on the morning of the 4th July, and to place himself on that line at that hour. But this was not what was done.

A started at full speed to meet B on the coast of Spain, but in place of falling in with B by day, he did so by night! About 3 a.m. on 4th July the "*Duchayla*" sighted B's cruisers, which gave her chase, only to find themselves face to face with A's battle squadron, which promptly put them *hors de combat*. Shortly after one of A's destroyers sighted B off the Spanish coast, who, as soon as chased by A, took refuge in neutral waters. It could therefore be considered as defeated.

The Admiralissimo, who happened to be on the spot, did not wish the operations to be brought to a close in this manner, so he recalled all the ships within reach, steamed some hours with them, then dispersed them, assigning to each ship their original fighting value. B then effected a junction with C, and the combined squadron proceeded to search for A, who had not yet decided to give chase, and who, moreover, had lost all touch with his cruisers. Finding himself confronted by an adversary stronger than himself, A took flight, shaping his course towards Mers-el-Kébir, where on the 5th he found his cruisers and was also rejoined by A¹.

Learning this, the allies B and C altered their course and proceeded to Ajaccio to complete with coal, etc., where A with A¹ hastened to blockade them on the 8th. On the morning of the 9th B and C steamed unexpectedly out of Ajaccio and found A and A¹ steaming to the north, and consequently placed at a disadvantage. A battle ensued, and it seems to have been unanimously agreed that A and A¹ were beaten by the Allies, although B and C were inferior in numbers. This battle marked the conclusion of the first phase of the manoeuvres. The ships proceeded to the roadstead at the Hyères Islands, and on the 11th returned to Toulon to coal and complete with stores.

Thanks to the orders given by Admiral Gervais, this operation was one of great importance. The officers, who had been in the habit of going on shore while the hard and disagreeable work of coaling was going on, were requested to remain on board, and the result of this step proved excellent for the ships. On land there had been some delay on account of a strike among the Italian workmen charged with the work of getting the coal into the lighters; but the delay so caused was not of much importance; but we own to a feeling of stupefaction at finding Italians being relied upon in the case of a naval mobilisation!

The united squadrons remained at Toulon till 17th July, on which date the second phase of the manoeuvres commenced.

Admiral Gervais, President of the Committee on Tactics and Strategy at the Ministry of Marine, employed this second phase in the study of problems set out by the Committee. Most time was devoted to the new system of tactics proposed by Captain von Rudolph, of the Austro-Hungarian Navy, who proposes to substitute for line ahead an échelon formation, which may be called a formation in two indented columns. Since the first appearance of this tactical work, rather more than a year ago, Captain Rudolph's suggested tactical formation has found numerous partisans, whose numbers increase day by day.

Coming back to the manoeuvres of the second phase, we can but say that the opportunity was taken after the tactical exercises to carry out target practice, and to make an attack on Corsica in the presence of the President of the Council of Ministers and the Minister of Marine, who were embarked on board the "*Bouvet*."

Some Criticisms.—This year's theme was much superior to those of preceding years. Strategy and tactics each played a prominent part. Almost our whole European fleet was represented, and each ship had its own special place to fill. It must be admitted, however, that the scheme did not include a sufficient mobilisation of the *personnel* or of the torpedo-boats. None of these latter were mobilised, yet the grand manoeuvres is just the time when the opportunity should be taken of seeing that

the torpedo-boats are all ready for immediate service. It is true that Admiral Fournier has been selected to inspect the condition of all our mobile defences, but still we hope that next year this inspection will precede the manœuvres, and that our submarines as well as our mobile defences will be turned to better purpose than they have been this year.

Let us consider now the manœuvres from a strategical and tactical point of view.

The strategical problem set was a simple and good one: it was to prevent a slower adversary from entering the Mediterranean from the westward. It was necessary to first discover him, get in touch, and then fight him.

To find him seemed easy, because he had to pass a long narrow zone, where it was impossible so to navigate as not to be seen by daylight; but yet he was not found. Why? Plainly because the admiral did not understand the position! Acquainted with the time the enemy was passing Gibraltar, he started off at such a speed to meet him that he very nearly let him slip by in the night, and for anyone studying the manœuvres it seemed as if the admiral did not even know the route of the enemy. But however things came about, we cannot see from what took place any solution of the problem, which we wished to see solved, viz., whether it is possible for the French forces in the Mediterranean to bar the road to a hostile squadron coming from Gibraltar, and to oppose its junction with a friendly or allied force assembled in either Sardinian, Italian, or Maltese waters.

The operations of Admiral de Maigret have not thrown any light on this point, and we should have felt easier if we had seen the admiral act with more logic and method. The way he lost all touch with his cruisers during the whole day of the 4th, does not inspire us with confidence. How was it that only one night of cruising was sufficient for the cruisers to lose touch of the fleet, and how was it that these cruisers remained for twenty-four hours without any news of the fleet? And yet we are asked to believe that this was a brilliant operation! From the beginning to the end the strategy displayed during the first phase of the manœuvres was a failure, and for the future it must be understood that the enemy should be picked up by day rather than by night; this is only an elementary principle of strategy, universally recognised.

But let us now pass to the tactics; and here again in the first battle off Ajaccio the Commander-in-Chief of the Mediterranean does not seem to have risen to his opportunities. Whether his dispositions were bad, whether they were badly understood or badly executed, it was the squadron of Admiral Ménard which remained the victor.

Admiral de Maigret wished to stick to the old order of sailing and order of battle, the celebrated "line ahead," and he was wrong, because:—1. The line ahead does not lend itself to sufficiently rapid evolutions. 2. It is a bad battle formation.—*Le Yacht, Le Temps, and La Marine Française.*

UNITED STATES.—*Report on the First-class Battle-ship "Illinois."*—The Board appointed by the Navy Department on 3rd June, 1901, to examine battle-ship No. 7, the "Illinois," and witness the trial of that vessel and her machinery, have submitted their report, under the date of 28th June. The "Illinois" sailed from Newport News at 11.30 a.m., 8th June, and arrived in President Roads at 9 a.m., 10th June. The U.S.S. "Hist," "Lancaster," "Essex," "Newport," "Peoria," and "Potomac" had been detailed by the Department to act as station vessels for trial observations. On the afternoon of 11th June the Engineer Board, with the assistants, visited the "Illinois" to make their preliminary inspection.

At 6.45 a.m., 12th June, the Board went aboard the "Illinois," and assembled at 8 a.m. Present, all members and the recorder. At 7.55 a.m. the "Illinois" got under way, and stood out to sea for the Cape Ann course. At 10.08 a.m. the contractors reported the vessel ready, and she was headed for Buoy No. 1 of the course.

The draught of the ship for the trial was:—Forward, 23 feet 6½ inches; aft, 23 feet 7½ inches; mean draught, 23 feet 6½ inches. At 10 h. 12 m. 03 s. a.m., 75th meridian time, the "Illinois" passed Station No. 1 on her official trial. After passing Station No. 6 she made a long turn of 17 m. 44 s., and then stood back on the course. Times of passing Stations Nos. 1 and 6, 33 nautical miles apart, are as follows:—Run

north.—Station No. 1, 10 h. 12 m. 03s. No. 6, 12 h. 06 m. 07 s. Difference, 1 h. 54 m. 04s.; time taken in making run of 33 nautical miles over the course. Run south.—Station No. 6, 12 h. 23 m. 51 s.; 2 h. 18 m. 33 s. Difference, 1 h. 54 m. 42 s., time taken in making the run south over the course of 33 nautical miles. Time of making total run of 66 nautical miles over the course north and south, 3 h. 48 m. 46 s., which gives a speed of 17.31 nautical miles per hour. The applied current corrections make the actual distances through the water as follows:—Run north, 33.169 nautical miles; run south, 33.360 nautical miles; total run, 66.529 nautical miles, which, divided by the total elapsed time on the course, gives a true mean speed of 17.449 nautical miles per hour.

The weather was fine during the run, and perfectly clear; the sea was absolutely smooth. The vessel carried her helm practically amidships during the run, and deviated but slightly from the course. The run was made, practically, on an even keel. At the end of her trial, after the water had been pumped up in the boilers, the helm was put hard astarboard, from amidships, in 27 s., and the ship made a complete turn in 3 m. 8 s.; diameter of turning circle, about 300 yards. The helm was then put hard aport and a complete turn was made in 3 m. 10 s.; diameter of turning circle, about 300 yards. The helm was then put from hard aport to hard astarboard in 25 s. Under extreme helm both ways, the heel was about $3\frac{1}{2}^{\circ}$.

On the return to Boston, when in 29 fathoms of water, both anchors were let go, and chains veered to 45 fathoms at the water's edge; both anchors were then hove up, the chains coming in at the rate of $7\frac{1}{2}$ fathoms in 64 s. This was regarded as satisfactory.

The following are the maximum and average revolutions of both engines, steam pressure and air pressure, during each run of the official trial:—

Run north.—Maximum revolutions, starboard 121.9, port 119.2; average revolutions, starboard 118.6, port 117.4; maximum steam pressure in boilers 186.0, maximum steam pressure at engines, starboard 185.0, port 184.0; average steam pressure in boilers 180.2, average steam pressure at engines, starboard 178.0, port 175.5; maximum air pressure in fire-rooms .75, average air pressure in fire-rooms .69. Run south.—Maximum revolutions, starboard 120.5, port 119.1; average revolutions, starboard 118.0, port 117.2; maximum steam pressure in boilers 182.0, maximum steam pressure at engines, starboard 180.0, port 182.0; average steam pressure in boilers 178.5, average steam pressure at engines, starboard 174.5, port 172.6; maximum air pressure in fire-rooms .75, average air pressure in fire-rooms .71.

During the time the ship was on the trial course, including the turn between runs (total time 4 h. 05 m. 30 s.), the requirements of the contract and specifications as to throttle, etc., were strictly carried out. The average air pressure in the fire-rooms during the entire run was .70 inch of water, or .30 inch less than the average pressure allowed by the contract.

The Board reports finally that the vessel is in all respects complete and ready for delivery, in accordance with the requirements of the contract, except as to certain minor details. The corrected speed of the "Illinois" was 17.449 knots. The displacement of the ship at the trial draught, 23 feet 6 inches, was 11,540 tons. The weight of the machinery, including water in boilers and surface condensers, etc., in accordance with the contract for the construction of the "Illinois," according to a statement furnished by Commander Richard Inch, U.S.N., Inspector of Machinery, is 1235-554.35-2240 tons. The working of the machinery, both main and auxiliary, and the performance during the trial, was in all respects satisfactory. A careful observation and inspection of various parts of the machinery, during and after the trial, show that the engines are, on the whole, in excellent condition.

The boilers are in excellent condition in every respect; only one tube was found to be leaking slightly, needing re-expanding. A number of leaky joints in pipes and valves need renewing.

The Board had no opportunity of testing the behaviour of the "Illinois" in bad weather. The steering and manœuvring qualities of the vessel are excellent, and she is

very free from structural vibrations at the full power of her machinery. The Board makes some minor criticisms and suggestions for improvement in the power of her machinery. The Board makes some minor matter of ventilation for the engine-rooms, increased water-closet accommodation for the crew, raising the signal yards and elevating the floor of the passageway around the conning-tower. The Board notes that the hatches in the floors of the upper and lower tops are immediately in line, and believes it would be more satisfactory if, in future designs, such hatches and ladder leading to them be placed quartering on the mast, with the two hatches out of line, so that in descending the ladder from the upper to the lower top, there would always be solid floor space at the foot of the ladder on reaching the lower top.

The American Submarine Boats.—The report of the evidence given before the Committee of the United States House of Representatives appointed to investigate the value of submarine boats has been published and reveals a great conflict of opinion amongst American officers. Those who were in favour of the boats were Admirals Dewey, Hiehborn, and Farquhar, Captain Folger, Commanders Mason and Wainwright, Lieutenant H. H. Caldwell, and Mr. Lewis Nixon, the submarine torpedo-boat builder. Admiral O'Neil strongly opposed the "Holland" type on the ground that it was yet experimental. He insisted upon the dangers of submarine navigation, the dependence of submarine boats upon their base or upon convoy, their insufficient speed, and the difficulty of keeping them in order. "The only use," he argued, "of the 'Holland' is to discharge torpedoes, and no weapon is more erratic and uncertain in its flight. It must be adjusted and launched with the greatest accuracy to have even a possibility of hitting its mark, and when discharged from a boat as erratic in its movements as the 'Holland,' the possibility is reduced to a minimum." The admiral further urged that foreign Powers would hesitate before making war on the United States if they possessed an effective fleet of battle-ships and cruisers, while submarine boats would have no bearing on the subject. Admiral Melville adopted a similar line of argument. He said the boats would soon get out of order, and in any case would be of little value. The idea had been started, or supported, he said, "by a gentleman known as Crazy John Lowe, who wanted to attack Havana." Admiral Bradford also opposed the purchase of submarine boats because of their little prospective value. The idea had been entertained for 250 years, but not a single instance of success could be cited. Admiral Hiehborn's testimony was significant. He has been a consistent advocate of submarine boats, and told the Committee that they "would be a help to nervous people." He reminded the Committee that during the war with Spain old monitors condemned more than thirty years ago had to be sent down the New England coast to pacify the people. Admiral Dewey had expressed the value of submarine boats very well when he said that he could not have gone into the harbour of Manila if such boats had been there, owing to the nervous strain thrown upon his officers and men. Admiral Hiehborn further said that the construction of these boats was imperative, and that he believed the British Government would very shortly follow suit. He had had communications from some leading British naval architects, who asked his advice, and could judge from their letters that submarine boats would presently be provided for the British Navy. The admiral said, in conclusion, that no nation could be without them.

No Sheathing for New Vessels.—As stated in the *Army and Navy Journal* of 16th March, the Secretary of the Navy has finally settled the question of sheathing for vessels of the Navy in accordance with the recommendations of Rear-Admiral Bowles and the Board on Naval Construction. The official report of Chief Constructor Bowles is as follows:—

"SIR,—In view of the provision in the last Appropriation Bill that 'the Secretary of the Navy is hereby authorised to exercise his discretion as to the sheathing and coppering of naval vessels herein and heretofore authorised to be built,' the Bureau, after consideration, recommends, for reasons given below, that the wood sheathing provided for in the specifications for the three battle-ships and three armoured cruisers recently contracted for, be not fitted to those vessels.

"2. The Department's experience with its unsheathed vessels of the North Atlantic Squadron during the late war is too recent to require more than mention, as

bearing further evidence to the practicability of such vessels without sheathed bottoms operating continuously for considerable periods, even in southern waters, without material deterioration in speed.

"3. The system of sheathing proposed for application is based upon that employed by a foreign nation, in whose experiences in the development of sheathing are to be found examples of the dangers with which its use is, to a considerable extent, necessarily attended and so far as the application of sheathing in the Navy of the United States is concerned, the work is in that experimental stage which may well be expected to be attended by the difficulties and defects which accompany the development of sheathing abroad, and has resulted in its abandonment by at least one country whose naval expansion is in some degree parallel to our own. The Bureau believes that it is undesirable that there should be introduced into these complicated and expensive vessels such an element of possible difficulty and weakness as sheathing is in the present state of development in its application to vessels of the Navy.

"4. The omission of sheathing from these vessels will result in a very considerable saving in first cost, both for the sheathing work proper and for incidental work made necessary by it, and the avoidance of any reduction in the efficiency of armoured protection, through the piercing of the hard face of armour by numerous holes."

It will be remembered that the final decision in this matter was that all of the vessels either now under construction or authorised for construction shall not be sheathed except the six protected cruisers of the "Denver" type, which have progressed so far in their construction that it was thought inadvisable not to continue as originally intended and have them sheathed and coppered.

Launch.—The new first-class battle-ship "Maine" was launched from Cramps' Shipyard, Philadelphia, on 27th July. The keel of the new battle-ship was laid 15th February, 1899, on the anniversary of the destruction of the "Maine" in Havana Harbour. The type of the "Maine" is that of a first-class battle-ship, of the same style as the "Alabama," but larger and more powerful, carrying a greater area of armour and more guns. Her dimensions are as follows:—Length between perpendiculars, 388 feet; over all, 393 feet 10½ inches; beam, 72 feet 2½ inches; draught, 23 feet 6 inches; displacement, 12,300 tons, or with a full load 13,500 tons; engines, 16,000-H.P., supplied by Niclausse boilers; speed, 18 knots. Her armament will consist of four 12-inch breech-loading rifles, and sixteen 6-inch rapid-fire guns, mounted. The four high-power 12-inch guns will be mounted in pairs in the two turrets fore and aft, and sixteen of the new Navy 6-inch guns will be mounted on the broadside.

Krupp armour is to be used throughout. The armour belt, which is to be 11 inches thick at the top, tapering to 7½ inches at the bottom, extends to within 60 feet of the stern, shielding the sides 3½ feet above the water-line and 4 feet below it. The casemate armour is to be 6 inches thick; the barbette armour 12 inches in front, tapering to 8 inches in the rear. The protective deck will be 2½ inches thick, while aft, where there is no belt armour protection, it is thickened, being 4 inches on the slope and 3 on the flat.

The forward conning-tower will have 10-inch armour and the signal-tower 6-inch armour. Leading from the conning-tower to the protective deck is a steel tube intended to protect the voice tubes and telegraphs extending from the commanding officer's station to the stations below. This tube is 12 inches in diameter inside, and is protected by a steel covering 7 inches thick. The engines are of the twin-screw, triple-expansion inverted vertical type. The twenty-four Niclausse boilers, which are nearly completed, are expected to give 16,000-H.P.

New Armoured Cruisers.—The Chief of the Bureau of Construction and Repair is now preparing plans for two armoured cruisers which will be authorised by Congress at its next session. According to the instructions issued by the Board of Construction, these cruisers will be superior to foreign vessels of their type, and, in fact, will be superior to any armoured cruisers ever built for this or any other country. Either way the battle-ship controversy is finally settled, the two battle-ships which will form part of the naval increase next session will be more formidable than any of their type

contemplated by foreign Governments. So the cruisers are to be more formidable than other vessels in their class. A few weeks ago Rear-Admiral Bowles, the chief of the Bureau of Construction and Repair, presented to the Board plans for an 11,000-ton armoured cruiser. The main battery consisted of four 8-inch guns and a number of 6-inch guns. According to the plans an excellent distribution of weight was made, and they hence received the almost unanimous approval of the Board of Construction. Rear-Admiral Bradford, however, objected to the plans, arguing that as England and other maritime Powers are building armoured cruisers of 14,000 tons displacement, this country should build vessels superior, if anything, but certainly not inferior in any respect. His view was accepted by the whole Board, and consequently Admiral Bowles was directed to have prepared the plans for a larger ship. It is expected that the plans will describe vessels having these general characteristics:—Length, 502 feet; beam, 49 feet 6 inches; draught, 24 feet 6 inches; displacement, not less than 14,000 tons. Armament, eight 8-inch guns in four turrets, two forward and aft on the keel line of the ship, and one in each beam in the waist of the ship; fourteen 6-inch guns, most of which will be in broadside, and a strong secondary battery not yet determined. It is barely possible that the 8-inch guns will be replaced by 7-inch guns of the rapid-firing type. The Board is divided on this question. The speed of the cruisers will be 22 knots; they will have coil boilers, vertical triple-expansion engines and twin-screws, and a coal capacity of 2,000 tons. There seems to be a growing tendency among naval experts to build more battle-ships in the future than armoured cruisers. It is claimed by many of the best known naval constructors that they are generally more efficient and useful than the armoured cruisers. This matter will be discussed in the near future and will probably be a subject for a report to be made by the Board of Construction.—*Army and Navy Journal*.

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS FOR SEPTEMBER, 1901.

Colonel Sir J. W. Murray, K.C.B., from an A.Q.M.G. in India, to command a Second-class District in India, and to have the temporary rank of Brigadier-General whilst so employed. Lieut.-Colonel C. H. V. Garbett, I.S.C., to be Colonel. Colonel B. Duff, C.B., C.I.E., I.S.C., is granted the rank of Major-General, whilst officiating as Adjutant-General in India. Lieut.-Colonel C. R. W. Hervey, R.G.A., to be Colonel. Lieut.-Colonel R. S. Watson, A.O.D., to be Colonel. Lieut.-Colonel H. L. Aylmer, ret. pay, to be Colonel. Major and Brevet Colonel (local Brigadier-General) E. A. H. Alderson, C.B., A.D.C., the Queen's Own (Royal West Kent Regiment), to be Inspector-General, Mounted Infantry, retaining the local rank of Brigadier-General in South Africa, whilst so employed. Colonel G. E. Harley, C.B., A.D.C., to be a Colonel on the Staff, whilst commanding a mobile column. Lieut.-Colonel H. J. Scobell, 5th Lancers, to be Colonel in recognition of his excellent service in South Africa during the last three months. Lieut.-Colonel J. P. R. Gordon, C.B., 15th Hussars, to be Colonel. Lieut.-Colonel C. H. Collette, h.p. to be Colonel. Major and Brevet Lieut.-Colonel R. B. Adams, V.C., C.B., I.S.C., to be A.D.C. to the King, and to have the brevet rank of Colonel in the Army. Colonel R. H. Jeff, C.M.G., ret. pay, to be Governor and Commandant Royal Military Academy, with the temporary rank of Major-General whilst so employed. Colonel J. T. Cummins, C.B., D.S.O., I.S.C., on relinquishing the local rank of Major-General and the command of a Brigade, China Expeditionary Force, is granted the honorary rank of Major-General.

HOME.—The Report of the Committee appointed by the Secretary of State for War to consider the Re-organisation of the Army Medical Services has recently been published. The Committee consisted of the following members:—Mr. Brodrick, M.P. (Chairman), Colonel Sir Edward Ward, K.C.B., Permanent Under-Secretary for War

(Vice-Chairman), Major-General Sir G. de C. Morton, Colonel Sir James Willcocks, Sir Frederick Treves, Sir William Thomson, Surgeon-General Hooper, I.M.S., Lieut.-Colonel A. Keogh, R.A.M.C., Mr. G. H. Makins, Mr. A. D. Fripp, Dr. H. Tooth, Professor A. Ogston, and Dr. E. C. Perry, with Major H. E. R. James, R.A.M.C., as Secretary. The report of the Committee is as follows :—

SCHEME FOR THE RE-ORGANISATION OF THE ARMY MEDICAL SERVICES.

ADVISORY BOARD.

1. The Royal Army Medical Corps shall be under the supervision of a Board to be termed the Advisory Board for Army Medical Services and constituted as follows :—

The Director-General, A.M.S., Chairman.

The Deputy Director-General, A.M.S., Vice-Chairman.

1 Officer, R.A.M.C., with special knowledge of Sanitation.

1 Officer, R.A.M.C., with special knowledge of Tropical Diseases.

2 Civilian Physicians appointed by the Crown on the recommendation of the Secretary of State.

2 Civilian Surgeons appointed by the Crown on the recommendation of the Secretary of State.

1 Representative of the War Office appointed by the Secretary of State.

1 Representative of the India Office appointed by the Secretary of State for India.

The Matron-in-Chief, Queen Alexandra's Imperial Military Nursing Service (for Nursing Service only).

2. To be eligible for appointment upon the Advisory Board a Civilian Physician or Surgeon shall be required to hold or to have recently held a post on the acting staff of a leading Civil Hospital in England, Wales, Scotland, or Ireland, and to be not more than 55 years of age upon first appointment.

3. A Civilian Physician or Surgeon upon the Advisory Board shall hold office for a period of 3 years, renewable upon expiration of the term of his appointment, but subject to the proviso that he shall vacate his seat on the Board upon attaining the age of 60 years. He shall receive an honorarium of £200 per annum in addition to his out-of-pocket expenses for duties performed beyond a radius of 4 miles from Charing Cross.

4. The Advisory Board shall usually meet at fortnightly intervals, and the necessary quorum for the transaction of business shall be the Chairman (or in his absence the Vice-Chairman) and two other members of the Board, of whom one must be a civilian. The Chairman (or in his absence the Vice-Chairman) shall have the right to vote, and, in case of an equality of votes, shall have a casting vote.

5. The Advisory Board shall report to the Secretary of State upon all matters concerned with medicine, surgery, sanitation, and epidemic diseases as they affect the military services.

6. The Board shall advise the Secretary of State upon the adequate provision of hospitals and upon the equipment of the same in full detail; upon the supply of drugs, appliances, diets, and medical comforts to the patients; and generally upon whatever concerns the well-being of the sick and wounded.

7. The Board shall prepare and submit to the Secretary of State a scheme for the expansion of the Service to meet the needs of war or serious epidemics, such scheme dealing with questions of ambulance and transport, the equipment of all medical units at the base and front and on the lines of communication, the supply of drugs and medical comforts, the employment in the Service of civilian surgeons, nurses, and orderlies, and the utilisation of all voluntary effort for the relief of the sick and wounded.

8. The Board shall have submitted to it, and shall report to the Secretary of State upon, all plans for new hospitals and upon standard plans for barracks and standing camps.

9. It shall be the duty of the Board to draw up a list of civil hospitals recognised as places of study for members of the Royal Army Medical Corps.

10. The Board shall also draw up a list of hospitals and nurse-training schools recognised for the purposes of the Queen Alexandra's Imperial Military Nursing Service.

11. The Board shall arrange, so far as practicable, for the annual inspection of each of the military hospitals by a Sub-Committee consisting of at least one military and one civilian member of the Board, such inspection to be usually made without notice.

12. This Sub-Committee shall ascertain and report to the Board whether the treatment of patients and the equipment of hospitals inspected be in accordance with modern medical and surgical requirements.

13. The Board may, with the permission of the Secretary of State, detail specially qualified Officers of the Royal Army Medical Corps or others to visit and report upon the army medical services of foreign countries.

14. The promotion of officers or their retention in the Service will be referred to the Board for consideration before submission by the Director-General to the Commander-in-Chief.

15. The Board shall supervise the admission of candidates to the Royal Army Medical Corps, and shall arrange for the examination of officers for promotion, appointing examiners and recommending to the Secretary of State the amount of their remuneration, regard being had as heretofore to the English, Welsh, Scotch, and Irish medical schools. Except as specified in paragraph 25, examinations shall be held every 6 months at dates to be fixed by the Advisory Board. Examiners shall be appointed annually by the Advisory Board, but no examiner shall serve continuously for a longer period than 4 years. A member of the Advisory Board shall not be appointed examiner.

16. The Board shall exercise a general control over the nursing service, and, in consultation with the Nursing Board, shall submit to the Secretary of State a scheme to develop the training of orderlies as attendants upon the sick and wounded.

DIRECTOR-GENERAL.

17. The Director-General shall be appointed by the Secretary of State on the recommendation of the Commander-in-Chief, acting with the advice of the Advisory Board, and shall hold office for 5 years.

18. The Director-General shall be responsible for the administration of the Army Medical Service, the Militia Medical Staff Corps, the Militia Reserve trained in medical duties, and the Volunteer Medical Staff Corps. He shall be responsible for the distribution, promotion, discipline, and general organisation of these services.

19. After reference to the Advisory Board as defined in paragraph 14, the Director-General shall bring forward to the Commander-in-Chief the names of officers whom he may judge worthy of promotion.

20. The Director-General, in concert with the Advisory Board, shall draw up a scheme for the due provision of medical aid for the Auxiliary Forces, Militia, Yeomanry, and Volunteers.

CANDIDATE AND LIEUTENANT ON PROBATION.

21. A candidate for admission to the Royal Army Medical Corps shall be a British subject of unmixed European blood, not more than 28 years of age, and shall possess a registrable qualification to practise. He shall produce a certificate of birth or other satisfactory proof of age, and shall furnish to the Advisory Board such evidence as may be required regarding character, conduct, professional ability, and fitness to hold a commission in the corps. Special importance shall be attached to a confidential report to be requested by the Board from the Dean or other authority of the school in which the candidate has completed his course as a medical student.

22. Subject to such arrangements as may hereafter be made, opportunities will

be given for civilian surgeons over age, who have served with troops in the field, to enter the corps. Special marks, on a scale to be fixed by the Advisory Board, shall be granted to candidates who have performed medical duties with troops on active service.

23. A candidate, having fulfilled the above requirements, shall be directed to appear before the Advisory Board, who will decide whether he may be allowed to compete for a commission in His Majesty's Army.

24. After having been medically examined the candidate shall be submitted to a clinical and practical examination in medicine and surgery, the scope of which shall be defined by the Advisory Board.

25. Having gained a place in this Entrance Examination, the successful candidate shall be appointed Lieutenant on probation, and shall proceed to Netley (until other arrangements have been made) for a 2 months' course of instruction in hygiene and bacteriology, after which he shall be examined in these subjects. He will then proceed to Aldershot, where he will undergo a 3 months' course of instruction in the following subjects :—

Stretcher and ambulance drill.
Interior economy.
Military law and hospital management.

On the completion of the course he shall be examined in these subjects. The marks gained at both these examinations (provided they are not less than the 50 per cent. requisite to qualify), added to those at the entrance examination, shall decide his position on the seniority list of the corps, and he will thereupon be confirmed in his appointment as lieutenant. The mark ratio of each of these minor examinations to the entrance examination shall be as 1 to 8.

26. A lieutenant on probation who fails to obtain the qualifying percentage of marks in either of these minor examinations shall be allowed a second trial at the termination of 6 months from entrance to the Service, and should he qualify will be placed at the bottom of the list. If, however, he should again fail in either examination, his appointment will not be confirmed, and he will leave the Service.

27. Should a candidate pass the entrance examination to the Royal Army Medical Corps whilst holding a resident appointment in a recognised civil hospital, or be appointed thereto at such a date as will permit him to take up his duties immediately after he has passed the entrance examination for the Royal Army Medical Corps, he shall be seconded for the period of such appointment not exceeding 1 year, receiving, however, during such period no pay from Army funds, but counting his service towards pension or gratuity.

28. A lieutenant, on completion of his course of instruction, will be attached for duty to a battalion, regiment, or other unit, but while thus attached will also be detailed for duty in a station hospital; but this provision shall not entitle any unit to claim that a medical officer should be attached thereto.

29. At the end of 3 years from the confirmation of his appointment as lieutenant he will be permitted to retire, or if, in the opinion of the Advisory Board (based on the reports received from his Principal Medical Officer and the Commanding Officer of the unit to which he has been attached), his service has been satisfactory, he will be allowed by the Secretary of State to adopt one of the following courses :—

- a. To continue in the Service.
- b. To engage for a period of 7 years in the Reserve of Officers, receiving £25 per annum while so serving. An officer who has been in the Reserve for a period of not less than 1 year or more than 3 years may be permitted by the Secretary of State on the report of the Advisory Board to return to the Active List, and if replaced on the Active List he shall be allowed to count one-third of his service in the Reserve towards promotion, pension, or gratuity.

30. Should the officer elect to continue in the Service, he shall be attached for a period of 6 months to a recognised hospital in a centre where he has opportunities of gaining further professional knowledge by attendance at a course or courses of instruction in a civil hospital, or otherwise, as may be approved by the Advisory Board.

31. At the end of 6 months of such instruction he shall present himself for examination in medicine; surgery; hygiene and sanitation; and bacteriology and tropical diseases. In this examination the relative value of the subjects expressed in marks shall be as follows:—

Medicine, 100; surgery, 100; hygiene and sanitation, 70; bacteriology and tropical diseases, 50.

The percentage of the total number of marks necessary to obtain distinction shall be as follows:—

Special certificate of excellence	...	...	...	...	85 per cent.
1st class	...	...	...	...	80 "
2nd "	...	...	...	...	70 "
3rd "	...	...	...	...	60 "

The qualifying mark in each subject shall be 40 per cent.

32. On the results of this examination an acceleration of promotion may be granted at the discretion of the Secretary of State, provided that the officer's conduct has been satisfactory, in accordance with the following scale:—

Class in examination.	Acceleration of promotion.
Special certificate of excellence	18 months.
1st class	12 "
2nd "	6 "
3rd "	3 "

33. An officer who does not reach the qualifying mark in each subject shall be considered as having failed to pass the examination, and shall be placed on a supernumerary list for a period not exceeding 6 months, when he shall be required again to present himself for examination in all subjects, and if he fail a second time he shall be compulsorily retired. Service on the supernumerary list shall not count for pension, increase of pay, or promotion.

CAPTAIN.

34. When an officer has passed the examination specified in paragraph 31 he shall be promoted captain, and shall undergo a short course of instruction in field hospital work, bearer company drill, or allied subjects approved by the Advisory Board, and on the conclusion of the course he shall be posted to such station and duty as the Director-General may order.

35. On the completion of 6 years' service as captain, subject to such acceleration as he may have obtained under paragraph 32, an officer shall be allowed by the Secretary of State to adopt one of the following courses:—

- a. To retire with a gratuity of £1,000.
- b. To continue in the Service.

36. Should he elect to continue in the Service, an officer, between his ninth and twelfth year of service (subject to such acceleration as he may have obtained under paragraph 32), shall be attached to a selected hospital at one of the military centres, so as to enable him to attend the practice of a recognised civil hospital for a period of 6 months, at the end of which period he will be required to present himself for examination in the following subjects:—

Medicine; surgery; hygiene and sanitation; bacteriology and tropical diseases; military law, administration and interior economy; and one special subject from the subjoined list of optional subjects, to which additions may from time to time be made by the Advisory Board:—

Bacteriology, including the preparation of antitoxins.
Dental Surgery.
Dermatology.
Fever.
Laryngology.
Midwifery and Gynaecology.
Operative Surgery (advanced).
Ophthalmology.
Otology.
Paediatrics.
Psychological Medicine.
Skiagraphy.

37. In this examination the relative value of the subjects expressed in marks shall be as follows:—

Medicine, 100; surgery, 100; hygiene and sanitation, 100; bacteriology and tropical diseases, 100; military law, administration and interior economy, 100; special subject, 100.

The percentage of the total number of marks necessary to obtain distinction shall be as follows:—

Special certificate of excellence	...	...	...	...	85 per cent.
1st class	...	...	...	...	80 "
2nd "	...	...	...	...	70 "
3rd "	...	...	...	...	60 "

The qualifying mark in each subject shall be 40 per cent.

38. On the results of this examination an acceleration of promotion may be granted at the discretion of the Secretary of State, provided that the officer's conduct has been satisfactory, in accordance with the following scale:—

Class in Examination.							Acceleration of Promotion.
Special certificate	...	...	...	...	...	...	18 months
1st class	...	...	...	...	...	...	12 "
2nd "	...	...	...	...	...	...	6 "
3rd "	...	...	...	...	...	...	3 "

39. An officer who does not reach the qualifying mark in each subject shall be considered as having failed to pass the examination, and shall be placed on a supernumerary list for a period not exceeding 6 months, when he shall be required again to present himself for examination in all subjects, and if he fail a second time he shall be compulsorily retired. Service on the supernumerary list shall not count for pension, increase of pay, or promotion.

40. An officer who in the opinion of the Advisory Board has been prevented by the exigencies of the Service, or by other very special circumstances, from presenting himself for examination as required in paragraphs 33 and 36, may be provisionally promoted, subject to his passing the prescribed examination at the first available opportunity.

41. In order to encourage the study of the special subjects enumerated in paragraph 36, appointments shall be made in each army corps and in such other places at home and abroad as may be approved of by the Secretary of State, of officers below the rank of lieutenant-colonel who shall receive specialist pay according to the rate given in

Appendix. To be qualified for appointment as specialist, an officer must have gained at least 70 per cent. of the marks in the special subject taken in the examination mentioned in paragraph 36. Specialists may also be appointed in Public Health, if they have first qualified by obtaining a diploma recognised for registration by the General Medical Council.

No officer shall hold more than one specialist appointment at the same time.

42. In case of an officer desiring to engage in advanced professional study, it shall be open to the Advisory Board to recommend that special leave be granted him for a period of 6 months.

MAJOR.

43. An officer, having completed 12 years' service (subject to such acceleration as he may have obtained under paragraphs 32 and 38), and having passed the necessary examination, shall be promoted major, and shall continue to serve in that rank under the following conditions :—

- a. After 3 years' service from the date of his promotion to the rank of major, he shall be granted a higher rate of pay (see Appendix).
- b. At the conclusion of 3 years from the date of his advancement to the higher grade (making 6 years in the rank), he shall if his service has been satisfactory, be allowed by the Secretary of State to adopt one of the following alternatives :—
 - i. To retire on a gratuity of £2,500 (see Appendix).
 - ii. To continue in the Service.

44. Should he elect to continue in the Service, he shall, before he has completed 20 years' service (subject to such acceleration as he may have obtained under paragraphs 32 and 38), be granted 3 months' study leave, and at the end of that time be required to undergo a qualifying examination for promotion to the rank of lieutenant-colonel, in the following subjects :—

- a. Hospital organisation, administration, and equipment in peace and war, including the disposal of the sick and wounded.
- b. Organisation, administration, and equipment in war of all medical units in the field and on the lines of communication.
- c. The sanitation of towns, camps, troop-transports, and all places likely to be occupied by troops in peace and war.
- d. Epidemiology and management of epidemics, and the relations of civil law as regards infectious diseases.
- e. The medical history of important modern campaigns.
- f. The administration, command and discipline of the Royal Army Medical Corps, and of other persons who may come under the jurisdiction of an officer of the corps.
- g. The duties of all ranks in the Royal Army Medical Corps.
- h. Recruiting and invaliding, including a knowledge of civil law as it affects lunatics in the Service.
- i. The relations of the medical to all other branches of the Army as defined by the various codes of regulations in force.
- j. The Army Medical Services of other Powers.

45. Should an officer fail to obtain 50 per cent. of the total number of marks, he will be allowed, after an interval of 6 months and before he has completed his 20th year of actual service, to present himself again for examination. Should he fail a second time, he will be compulsorily retired on a gratuity of £2,500, or he may, by special permission of the Secretary of State, complete 20 years' service and then retire on a pension.

46. Promotion to the rank of lieutenant-colonel will be by selection from among those officers who have passed the qualifying examination, and who have completed 20 years' service, subject to such acceleration as he may have obtained under paragraphs 32 and 38. If not selected for promotion within 12 months from the completion of 20 years' actual service, an officer will be permitted to remain on the pay of a major until he completes 25 years' service, subject to acceleration, when he will be compulsorily retired on the pension of his rank (see Article 527, Royal Warrant).

HIGHER RANKS, HOSPITALS, ETC.

47. During his service as lieutenant-colonel an officer may be selected for a higher rate of pay under Article 362, Royal Warrant for Pay and Promotion, which rate he will retain until promotion to the rank of colonel.

48. The promotion to the rank of colonel and surgeon-general shall be by selection. Service in India shall not be necessary for promotion to either rank.

49. Medical officers shall be eligible for brevet promotion in the Royal Army Medical Corps in the same manner as officers in the other branches of the Service; and such promotion may be given either for distinguished service in the field, or for distinguished service of an exceptional nature other than in the field.

50. Junior medical officers shall be gazetted directly to the regiments of the Household Brigade, and shall not be attached to them from the Royal Army Medical Corps as at present.

51. By special authority of the Secretary of State, medical officers of the Household Brigade may be appointed colonel in the Royal Army Medical Corps if they have complied with the conditions laid down in Article 362, Royal Warrant for Pay and Promotion, or as a reward for exceptional merit on active service.

52. When an officer is in charge of a hospital he shall receive charge pay at the rate specified in Appendix.

53. The appointment to the charge of certain selected station hospitals, to be hereafter specified by the Advisory Board, shall be for a term of not less than 3 years.

54. With the exception of officers attached to units, appointments to a district shall, unless broken by a tour of foreign service, be for a term of 2 years.

55. Should it be necessary to move an officer from his station for other than temporary duty at an earlier date, a report of the circumstances shall be forwarded by the Principal Medical Officer of the army corps to the Director-General.

56. The Principal Medical Officer in each army corps and in each district shall be the Staff Officer of the General Officer Commanding for all medical and sanitary services, and shall be responsible to him for the administration of all hospitals and medical stores.

57. The Principal Medical Officer shall deal with all matters in his district, and shall only refer to the Advisory Board in cases of serious doubt or difficulty.

58. Every army corps shall have a completely equipped bearer company and field hospital and a proportion of other medical field units at its headquarters, in order that the officers and men of the Royal Army Medical Corps may receive instruction and gain practical experience in the performance of field duties.

59. With the view of reducing the number of slight cases of illness in hospital, and thus providing accommodation for those of a serious nature, convalescent homes shall be established in each district to which soldiers recovering from severe illness may be sent. These homes, which are intended for men who are so far recovered as to be able to dispense with the services of nurses, shall be visited daily by a medical officer.

60. Medical officers in charge of units shall be instructed to retain in barracks cases of injury or illness of a trivial character, which are likely only to interfere for a few days with the soldier's performance of his duties.

61. For the reception of such cases a barrack room shall be set aside, when available, in which they will be attended by the medical officer in charge of the unit. The medical officers will, however, as far as possible, treat light cases of illness as out-patients.

62. In small stations where no military hospitals are available, arrangements may be made with the authorities of the local civil hospital for the admission thereto of cases requiring treatment as in-patients.

63. With the view of relieving the pressure of clerical work now experienced by the officers and men of the Royal Army Medical Corps, the Secretary of State has directed that steps shall be taken to simplify the returns rendered by medical officers, and the forms of accounts used in hospitals.

64. Consulting physicians and surgeons from the acting staff of recognised civil hospitals shall be appointed by the Advisory Board to attend when required at military hospitals at such times as may be desired by the medical officers in charge. Members of the Advisory Board shall not be eligible for appointment as consulting physicians or surgeons.

65. In order that opportunities for instruction and special advice may be obtained, serious cases will be concentrated whenever practicable in the larger military hospitals, *e.g.*, Woolwich, Millbank.

66. The Committee is strongly of opinion that the establishment of a Military Hospital and Medical Staff College for the training of officers of the Royal Army Medical Corps would very materially conduce to the efficiency of Army Medical Service. It recommends that immediate steps be taken by the Advisory Board to present a detailed scheme for the establishment of such a hospital and staff college for the consideration of the Secretary of State.

ST. JOHN BRODRICK.

E. W. D. WARD.

G. DE C. MORTON, Major-General.

JAMES WILLCOCKS, Colonel.

FREDERICK TREVES.

*WILLIAM THOMSON.

W. R. HOOPER, Surgeon-General.

G. H. MAKINS.

HOWARD TOOTH.

ALFRED D. FRIPP.

ALFRED KEOGH, Lieut.-Colonel, R.A.M.C.

*ALEX. OGSTON.

E. C. PERRY.

H. E. R. JAMES, Major, R.A.M.C., Secretary.

*Subject to remarks printed below.

Exceptions by Sir William Thomson, C.B. :—

1. Having regard to the important functions and powers of the civilian members of the Advisory Board, as set out in the report, I am strongly of opinion that it should be composed of representatives of the medical schools in the several divisions of the Kingdom.

The sum proposed to be paid would practically exclude other than London teachers, although 70 per cent. of the medical officers come from schools outside England.

2. It is inadvisable to fix an age limit for civilians on appointment.

This is not done in the case of the other representatives.

The Secretary of State for War can always protect himself in this regard when making selections.

WILLIAM THOMSON.

Exceptions by Professor A. Ogston—

I consider that the scheme falls short of what is requisite among other things in the following matters, viz. :—

1. It does not provide for the formation of a Sanitary Corps, consisting of officers specially charged with the duty of carrying out proper sanitary measures in peace and war, and a staff of men trained to ensure the requisite measures being carried into effect.
2. It does not provide such study leave as the advancing state of medical science now demands, and is likely in the future to demand even more, nor such liberal privileges in this direction as have been found necessary in the Armies of other great European Powers.
3. It makes no provision for placing at the disposal of the many medical officers serving in remote and isolated stations abroad such information as will enable them to familiarise themselves with the advances of medical science, and as is called for in the interests of those who are placed under their care.
4. It fails to provide for medical officers being trained by attendance upon civilian patients in all the branches of their profession, so that they may become equally skilful with their civilian brethren, and may avoid the narrowing influences which act so injuriously upon medical officers who have to deal only with the treatment of soldiers and military officials.

ALEX. OGSTON.

APPENDIX.

Proposed Rates of Pay, etc., for Medical Officers.

Rank.	Pay per annum.	Allowances, servants', lodging, fuel and light.	Total.
	£ s. d.	£ s. d.	£ s. d.
Lieutenant on probation and lieutenant	250 0 0	73 10 0	323 10 0
Captain, <i>i.e.</i> , after 3 years' service...	287 0 0	92 15 2	379 15 2
Captain, after 7 years' total service	307 4 10	92 15 2	400 0 0
Captain, after 10 years' total service	385 0 0	92 15 2	477 15 2
Major, <i>i.e.</i> , after 12 years' total service	430 0 0	157 12 10	587 12 10
Major, after 3 years' service as such	475 0 0	157 12 10	632 12 10
Lieut.-Colonel, <i>i.e.</i> , after 20 years' service	547 0 0	166 15 4	713 15 4
Lieut.-Colonel, selected under paragraph 362 of the Royal Warrant (establishment of 50)	638 0 0	166 15 4	804 15 4
Colonel	730 0 0	233 10 10	963 10 10
Surgeon-General	Consolidated.		1,500 0 0
Director-General	—		2,000 0 0

The pay of officers of the Royal Army Medical Corps below the rank of major while serving in India shall be increased so as to bear the same ratio to the above rates for non-Indian service as at present exists.

CHARGE PAY (see paragraph 50).

		s. d.
Hospital of 300 beds or more	... ..	10 0 per diem.
" 200	... ..	7 6 "
" 100	... ..	5 0 "
" 50	... ..	2 6 "

SPECIALIST PAY (see paragraph 41).

In Public Health and in any subject mentioned in paragraph 36, 2s. 6d. per diem.

RETIRED PAY AND GRATUITIES.

As already existing, with the following exceptions (see paragraphs 29 and 35) :—

Pay on the Reserve, £25 per annum.

Gratuity after 9 years' service, £1,000; £2,500 after 18 years' service.

CHINA.—*The Queen's Funeral Services at Peking.*—(Described by a U. S. Army officer who was present.)—The funeral services of the late Queen were held at the entrance court of the Forbidden City. The day was bright but very cold. The American contingent, consisting of soldiers from each arm of the Service, Cavalry, Artillery, and Infantry, left the Temple of Agriculture about 11 o'clock in the morning. All were dismounted. As we passed up the broad central street of Peking and through the Chienmen (gate) where the gallant Reilly fell we could hear the royal salute of 101 guns fired by the Royal Artillery. We passed over the Marble Bridge and through the gate into the court and found the Japs and the 1st Regiment of Sikhs already there. The Japs were drawn up in mass, with the first company resting about thirty paces from the walk running through the centre of the court and connecting the south gate with the gate into the Forbidden City. We formed platoon columns on their right and soon moved under the direction of a British staff officer further to the right to allow three companies of the French to form between us and the Japanese. A company of Germans, with their accurate step, came up the walk and formed on the west of it, opposite and facing us. Following them and forming for the service a little further down were three companies of Italians, while on their right were the Russians.

And now the British Native Army began to arrive. The Sikhs had already taken their place as well as the Beloochists. Then came a regiment of the Punjabs, and swung out to our right. They were preceded by their bag-pipe band, with its spirit-stirring music sounding like a million buzzing insects. All the players were full of dignity, and the queer combination was rendered more queer by the tall drummer, a six-footer, clothed in a magnificent leopard skin from head to foot. The Madras Pioneers and the Rajputs formed on the right of the Punjabs, and then came the neatest body of men I have ever seen. I do not suppose for fit and smartness of appearance the world has the equal, unless we except the West Point Cadets. This body was the Royal Horse Artillery, "Tommies" from England, and with their swelling chests, their tight-fitting trousers, their immaculate pipe-clayed white belts and helmets, they were the feature of the day. They had a dash and chic about them I have never seen elsewhere, and they moved up the walk with a jaunty step about 110 to the minute. As they passed in front of us I could not help feeling a thrill of pride at the sight of the smart battery, and I was glad that as long as they were not Americans they were English. As I looked at them I understood the large death rate in South Africa, for never a soul in that battery would ever dream of flight, but to a man would go down at his post. All these fellows are but common soldiers in His Majesty's Army, drawing their miserable stipend per month, and every one of them looking fit to perform any service of any nature, or fulfil any office or any position that man can fill. They were young men, and middle-aged, cleanly shaven and looked as though a bathtub were their daily occupation instead of handling the dirty guns of modern artillery. Then the Bengal Lancers, with their black and white pennants fluttering from the top of each lance, came and stretched across the entire south end of the court.

And now from the south came a flourish of trumpets that was taken up by the bands along the line. What did it mean? Our Colonel Coolidge faced about and called us to attention. And slowly up the walk, accompanied by a few staff officers, came the Count. His face, kind even in all its military bearing, now wore the traces of grief as though in Victoria he had lost a dear friend. He returned the salutes as he passed along, and with the last flourish took his place beside the bier. Shortly after

him came the Diplomatic Corps, all the ministers accompanied by their numerous officials. The uniforms of most of them were bright and striking, and while Mr. Conger was dressed in plain civilian clothes, as all civil officers of our Government are, yet his quiet dignified demeanour placed him where he has always been, in the very front rank of the Legation body.

And now before we listen to the service, or try to listen (for we are too far away to hear), let us go for a moment to the top of the wall at the south gate of the court, where many people are already, and turn our cameras on the scene before us. The white-robed divine steps forward to read the service and all the troops come to "parade rest" or "rest on arms." Count von Waldersee and staff are just the other side of the bier, and on his right are General Chaffee and staff, and around and near by are the other generals and staffs and the diplomatic body. Now coming down the right we first strike the Australian Naval Brigade with their black uniforms and their common sense showing everywhere. Close to them are the Punjabs with their rather dingy uniform, all of Indian pattern, but with fancy turbans. Then the Beloochistsans, much darker and more thick-set. Then come the few American troops with the blue of the infantry mingling in pretty effect with the red of the artillery and the bright yellow of the cavalry. One thing about the American troops—they are more comfortably clad than the soldiers of any other Power. And here let me say that our soldier is better taken care of and paid better than any soldier in the world. And there they stood in their fur gloves and caps, and so they could stand for hours with very little discomfort from the cold. Perhaps their uniform is not quite so showy as those of others, on some of whom the Holy Roman Eagles still shine from steel helmets made bright from constant rubbing. Perhaps the American uniform is not quite so neat as the English, which we must admit is the neatest uniform of all, but when it comes to downright business we have less to learn than any world Power represented in China.

On our left are the French, with their baggy trousers, their flowing capes, too long to look well, and their worthless Tam o'Shanter caps. And now on their left come the little fellows who to-day are the admired of the military world—those who so sturdily uphold the honour of the latest and youngest of civilised nations and who carry the sun for a flag. These poor Japs are without overcoats or gloves. How their fingers must tingle from contact with the cold steel of the gun-barrel. And they are cold, too. Every time "rest" is given they stamp their feet and blow upon their half-frozen fingers. And while we cannot help but admire the spirit that would cause them to stand there still till their fingers fell off and broke in frozen pieces at their feet, yet we cannot but see that Japan as a nation has much yet to learn.

Stretching across the south of the court and so right under us, are the Bengal Lancers, and passing them and starting up the west side we see first the yellowish-grey coats of the Cossacks and their heavy Astrakhan head gear. They are light complexioned fellows and seem to care very little about anyone but themselves. They are probably the most self-sufficient people in the world. Next to them are a few Austrian Marines and then come the doughty little Italians. They are dirty, ill-dressed, and looking anything but soldiers. Were you to ask me to pick out the representatives of the sunny land of song where history first commenced to grow out of fable, I should pick the others all out before those who are lined up opposite the French.

And now do come some soldiers. As we look at them our minds flash back to the Old Imperial Guard of Frederick the Great. Every one of these soldiers is six feet two, and their officers the same. With the eagles on their helmets, their long beautiful grey coats and high top boots, they are a military organisation of the very first order; and at the long "rest on arms" during the reading of the service never a muscle is seen to move up or down the entire rank, but like huge wooden images they appear the acme of military training (and yet the German Army has been the saddest disappointment to military men of any Army in China).

On the left of the Germans come the Rajputs from the north of India. How well they look in their full dress, brilliant crimson coats—tall and angular, with puttee wound legs, turbans of blue, they indicate the might of the English Empire which

welds together the discordant elements of earth's population into one homogeneous whole. With them are some Gourka officers, whose regiment was here in '60. Last night one of their officers said to me at dinner :—" In India we have five large porcelain jars ; they are in the regimental mess-room and came from the summer palace in '60. We did not know what they were, but looked upon them as simple jars. Since coming to China we see their use, as they stand before the altars in the temples. We younger fellows are learning again what the regiment learned in '60."

On their left came the Sikhs, sharp-featured as Greeks, aquiline noses, and handsome fellows all of them. A wonderful dignity about each one of them, and yet they are the cleverest looters of the whole lot. The Sikh dresses entirely in woollen khâki and yellow turban. Khâki, by the way, is the dress of the English Army, and is without doubt the most serviceable uniform made.

And now we come to the "Tommies" of the artillery, and as they take up the song of the Lamentation, after the dirge by the bagpipes, our minds float over the wall to the north into the throne room and private apartments of the Empress Dowager, and we cannot help comparing the two women. Here is one now passed away receiving the homage of the nations of the earth, while the other is a fugitive from her own palaces, fleeing from a shocked and indignant world. China with her despicable Empress, and England with her dead Victoria, the woman of women, the Queen of Queens.

FRANCE.—At the recent manoeuvres spectators had some chance of examining the new French field gun, over which the authorities had been so careful to keep the veil of secrecy, and Lieut.-Colonel Lanaja, of the Spanish Artillery, who had exceptional opportunities in this respect, has given a description of it.

Altogether 272 Q.F. 7.5-centimetre field guns took part in the last manoeuvres. These were organised into batteries of four guns and four wagons each, with a fifth wagon in reserve. As a general rule, on the march the wagons precede the guns, each wagon in front of its own gun. The men seated on the wagons always remain with the wagons, the men on the gun limbers with the guns. In double column of route the guns are on the right, the wagons on the left, so that each gun is on the right of its wagon. In line the wagons are in front, the guns in rear. In action the wagons are in line with the guns, each on the left of its own gun at 1 metre interval. The limbers of both wagons and guns are posted in a double column in rear of the least exposed flank of the battery. The fifth wagon was at the manoeuvres placed behind the line of guns to windward, and was often used as a point for observation.

In coming into action from double column each wagon is driven into line beside its gun. Both halt together, limbers are unhooked and taken to the rear, right and left about. The gun is now swung round by hand, and the ammunition wagon is thrown backwards so that the lids of the boxes rest on the ground ; the pole acts as an observing station for three gunners who are seated on the limber, while the preparation of the rear wagon is carried out by the three men on the wagon limber. The gun-leader dismounts as soon as the guns, etc., halt. In coming into action from line, the wagons halt in position and wait for the guns to be driven up to their right. In action the guns and wagons are placed as above described. In the case of the gun the break lever is lowered, by which means the trail is lifted above the height of the axles, where it is dropped so as to drive the spade with one stroke into the ground. In the case of the rear wagon the covers are opened and exhibit the bases of the seventy-two cartridges and the apparatus for setting fuses.

The three limber gunners take post thus : One on the right and one on the left of the trail, the third behind this last. The number on the right actuates the breech screw and closing apparatus, gives the gun elevation and fires. The first number on the left corrects deflection and direction, in which he is assisted by No. 2 if the trail has to be moved. No. 2 on the left loads and moves the trail if required. The numbers serving the ammunition can do so either standing or kneeling, as they prefer. Kneel-

ing they are fully covered from the front. The two first gun numbers are likewise covered to a certain extent by the shield, but not so much.

The ejection of the empty case works very smoothly, the case falling half a yard behind the trail. Nothing can be said as to how the gun would stand the recoil shell, etc., as only blank cartridges were used. The gun recoiled 5 or 6 centimetres in its cradle, but the trail did not move. Each battery on the war footing will have an ammunition supply train of four wagons 300 metres in the rear, and, if possible, a second of four more 500 to 800 metres in rear of that. If the second supply echelon is not at disposal, wagons will have to fill up from the ammunition column, but the carriages of the latter are not interchangeable with those of the former. The wagons are horsed with four, the guns with six horses. The breech mechanism is a model of simplicity. It is opened by a single horizontal movement from left to right. It might be possible to fire as many as thirty shots a minute. The operation of raising and dropping the trail is repeated at pauses from time to time to "tighten the pneumatic brake" mechanism. The worst points of its equipment are its extreme weight and delicate brake and elevating apparatus, which necessitates a skilled workman being included in each gun detachment.

The gun fires common shell and shrapnel of a weight of about 14 lbs., with a muzzle velocity of at least 1,640 foot-seconds. The breech is closed by an eccentric Nordenfeldt screw action, opening with a turn of 180°. The sights, which are on the left side, are so far forward that the layer, in laying, leaves the breech clear, so that the actions of loading and laying can proceed simultaneously. There is a "glycerine brake" in the trail, which is so strong as to make the action of recoil quite slow. At the same time, by the action of the recoil, the air in an air-chamber is strongly compressed, and the pressure of this air brings the gun back again automatically into the firing position. It is by reason of this combination of fluid and compressed air that the brake action has been called "hydro-pneumatic." The mechanism is still kept secret, though the principle is known. This brake is the most sensitive part of the whole gun. The least leakage in the air-chamber would cause the total escape of the air compressed to twelve atmospheres. The gun would fly back in recoil with great rapidity, and would not return to the firing position. The delicacy of the mechanism necessitates the retention on the strength of each four-gun battery of four skilled mechanics.

Other peculiarities of the gun are an arrangement for making minute allowances for deflection, steel shields between barrel and wheels to protect the men against fragments of shell and bullets, and two seats for two gunners while serving the gun. The gun itself weighs $21\frac{1}{2}$ cwt., the limber $13\frac{1}{4}$ cwt. It is intended that each battery shall consist of four guns and twelve wagons. Thus the ammunition equipment will amount to 1,248 rounds per battery, or 312 per gun. On the whole, foreign reports agree that the new gun is too heavy, of doubtful service ability owing to the hydro-pneumatic brake, and lastly that the French have sacrificed much for mere rapidity of fire.—*Army and Navy Journal*.

MEXICO.—The energetic President of the Mexican Republic, in conjunction with the War Minister, General Berriozabal, has been devoting himself, since the end of 1897, to the re-organisation of the Republican Army with great prudence and energy.

No less than 26 regulations have been elaborated, and the formerly badly armed Army has been completely re-armed with modern weapons. The Government have purchased 28,000 Mauser rifles and 6,000 Mauser carbines, 10,000 Remington rifles and 7,000 carbines of the same type, in addition to 15,000 rifle barrels also of 7-millimetre calibre for the restoration of the old weapons in possession of the troops. By means of these purchases and of the small arms already in the artillery general park, it has been possible not only to uniformly arm the infantry and cavalry, but also to provide the whole of the reserve formations with weapons in the event of a mobilisation. Four mountain batteries, 7-centimetre calibre, of the Mondragon

system, have been purchased in France, as well as 1 mortar battery, 8-centimetre, and 28 Colt machine guns; additional guns of various types for experimental purposes have also been provided. In order to experiment in the durability of the war *matériel*, and with the suitability of the recently introduced organisation, four expeditions will be despatched from the capital into the country, composed of infantry, cavalry, and artillery, in different directions and on different roads, and officers of the General Staff and the Engineers will take part in these expeditions, which are also meant to test the efficiency of the Field Postal Service, as well as the assembly of large bodies of troops.

In peace-time, the Mexican Army is not grouped into large units, the battalions remaining separate in garrison in the 12 military districts into which the country is divided. The War Minister is vested with the chief command, which he carries out through the channel of the General Staff, engineers, artillery, cavalry, infantry, and medical department, the chiefs of which have the rank of brigadier-general. The Reserves consist of the National Guards of the States, and of the federal districts, of the country police, and of the police forces of individual States. The regular police form the 1st Levy on mobilisation which is completed to strength by men who are called up for service. The different ranks in the Army are:—Corporals, sergeants 2nd and 1st Class, sub-lieutenants, lieutenants, captains 2nd and 1st Class, majors, lieutenant-colonels, colonels, brigadier and divisional generals. Officers may be dismissed from the Service, or invalidated, by decision of the Higher Tribunal. The President of the Republic arranges the nominations of officers up to the rank of colonel. The latter and generals can only be promoted to their respective ranks by consent of the Senate. Promotion goes in various branches of the Service according to seniority: corporals before promotion to sergeant must undergo an examination, and have held their rank for six previous months. Before officers can be promoted to the rank of captain 1st Class, they must either have gone through a course at the *Collegio Militar*, or else have passed a qualifying examination. There is no further examination for the rank of general, as time is supposed to show whether the officer in question is fit for promotion to the higher ranks or not. Promotions only take place to fill existing vacancies, and are only very exceptional in peace-time.

Military jurisdiction is exercised through the Military Court of Law, which consists of 1 division or brigadier-general as president, and 4 military members, brigadier-generals, 3 members of general's rank, and 2 supernumerary members. The following *personnel* is placed under the Court, 1 president (a colonel of infantry, cavalry, etc.), and 6 members, lieutenant-colonels, majors, or captains of the same branch of the Service. Other members are nominated by the War Minister.

The instruction of troops is carried out in battalions and regiments; higher instruction is given in the *Collegio Militar* and in the artillery, staff, and engineer schools. There is in addition a school for military surgeons, veterinary-surgeons, and music-masters. The battalions and regiments have monthly musketry practice, and every infantry and cavalry soldier must fire 50 cartridges a year. Batteries of artillery battalions fire 20 rounds during manoeuvres, and machine guns 100 rounds. At certain periods, battalions and regiments carry out grand manoeuvre marches in conjunction with field-firing. A new law with regard to universal conscription is at present in course of preparation. Hitherto, recruits for military service have been raised by lot according to the law of 1869, each Federal State having to provide the number allotted to it. The period of service is from 18 to 45 years of age, purchase from service being allowed, except in war-time.

The Army consists of general officers, the General Staff, the engineers with accessories, artillery with accessories, 28 infantry battalions of 4 companies each, 12 battalion cadres of 2 companies each, 14 cavalry regiments and 4 squadrons, 8 cavalry cadres to every 2 squadrons, the army police, and medical corps. There are 10 divisional and 50 brigadier-generals.

The General Staff of the Army includes 7 colonels, 10 lieutenant-colonels, 8 majors, 20 captains of the 1st and 21 of the 2nd Class, and 32 lieutenants. In order to enter the staff, it is necessary for an officer to go through a course at the *Collegio Militar*.

Officers of the General Staff officiate as staff officers to generals, under whose direction they work up the various subjects, and take part according to their ability in the military technical commissions, officiate as members of boundary commissions, work on the land survey, colonisation, etc. Of the map of the Republic 35 sheets are already in print; 47 are in process of preparation. On mobilisation a special General Staff will be formed for every unit. The General Staff of the Army is divided into 5 sections, under the direct orders of the War Minister. A brigadier-general fills the post of chief of the staff.

To the chief command of the artillery corps is entrusted the preparation, the keeping in repair, and the improvement, etc., of the *matériel*; in peace to supervise the training of the troops, and in war to lead them. It has also under its orders, artillery arsenals, small-arm manufactories, the general park, gun foundries, powder manufactories, museums, libraries, etc. At the head of the corps is a brigadier-general, and under him 11 colonels, 14 lieutenant-colonels, 17 majors, 36 captains of the 1st and 37 of the 2nd Class, 100 lieutenants, and 19 sub-lieutenants. The troops consist of 5 battalions (the 5th being a machine gun battalion), 6 sections from which are quartered at the harbours of Tampico, Vera Cruz, Progreso, Mazatlan, Acapulco, and Salina Cruz. Each battalion consists of 4 batteries (2 field and 2 mountain) of 6 guns, but to every 1st field battery, 2 horse artillery guns are allotted. The machine gun battalion consists of a staff and 2 companies with 12 machine guns. In war the field and mountain batteries are increased to 8, and the machine gun batteries to 4 guns, a corresponding increase being made in men, horses, mules, and carriages. In the event of mobilisation in the infantry, the 2 companies of the 12 battalion cadres are each brought up to 4 battalions on a war strength, and numbered from 29 to 40. In cavalry regiments, reserve squadrons will form their 4th squadrons. The military police consists of 1 squadron, and in peace-time carries out police duties, looks after posts between solitary garrisons, and acts as orderlies. They are picked men, and their numbers are considerably increased in war.

The Medical Corps contains 130 doctors with military rank, viz.:—3 colonels, 18 lieutenant-colonels, 60 majors, 13 captains of the 1st and 15 of the 2nd Class, and 21 lieutenants. Of the auxiliary troops organised up to date there are, in the infantry, in all 2 battalions and 7 companies, viz.:—1 battalion at Yucatan, 1 battalion at Tampico, 2 companies in California, 1 in Campeche, 1 in Tabasco, 1 in Acapulco, 1 in Coatzacoacos, and 1 in Salina Cruz. Of the cavalry 1 squadron is in California, 1 in Sonora, and 1 in Chihuahua. Each battalion at present consists of 2 companies, and should in time be increased to a strength of 4 companies. The Engineer Corps are entrusted with the building and up-keep of barracks and all military buildings, the looking after of all technical *matériel*, and has the entire instruction of telegraph and railway troops and the whole of the technical *personnel*.

As far as is known, the Army in war-time will be divided into 2 or 3 army corps of 3 divisions each; they may also, exceptionally, be formed of 2 or of 4 divisions. As a rule 3 infantry or cavalry brigades form a division, but a division may, according to the numbers at disposal, consist of 2 or of 4 brigades. The junction of 2 infantry and 1 cavalry brigade is called "a mixed division."

Table of Peace Strength of Regimental Troops.

Troops.	Staff Officers.	Captains and Subalterns.	Rank and File.	Total.
<i>Infantry.</i>				
28 battalions of 4 companies...	84	1,008	13,888	14,980
12 battalion cadres of 2 companies ...	24	108	1,788	1,920
2 district battalions and 7 companies...	4	58	1,228	1,290
Total ...	112	1,174	16,904	18,190

Table of Peace Strength of Regimental Troops—contd.

<i>Cavalry.</i>				
14 regiments of 4 squadrons	42	508	4,802	5,352
8 regimental cadres of 2 squadrons ..	16	72	1,208	1,296
2 district squadrons	—	21	243	264
Total	58	601	6,253	6,912
<i>Artillery.</i>				
4 battalions of 4 companies	12	140	1,856	2,008
1 machine-gun battalion of 2 companies	1	15	225	241
6 standing artillery sections	—	6	120	126
Transport squadron of artillery park...	1	10	69	80
Total	14	171	2,270	2,455
<i>Engineers.</i>				
1 Sapper battalion of 4 companies ...	3	35	663	701
Transport squadron of engineer park...	1	10	73	84
Total	4	45	736	785
Transport service	2	7	119	128
Military Police	—	8	113	121
Total	2	15	232	249
Grand Total	190	2,006	26,395	28,591

—*Précis from Militär-Wochenblatt.*

NAVAL AND MILITARY CALENDAR.

SEPTEMBER, 1901.

- 2nd (M.) Loss of Imperial German despatch-vessel "Wacht" by collision with the battle-ship "Sachsen" during the manoeuvres off Arkrona.
- 5th (Th.) The whole of Lotter's commando was captured by Colonel Scobell near Hershel. British casualties 10 killed and 8 wounded.
- 6th (F.) Mr. McKinley, President of the United States, was mortally wounded at the Pan-American Exhibition at Buffalo by the anarchist Czolgosz.
- 7th (Sat.) Launch of first-class battle-ship "Borodino" from New Admiralty Yard, St. Petersburg, for Russian Navy.
- 9th (M.) Major Kavanagh defeated Theron's commando at Mossel Bay.
- 10th (T.) H.M.S. "Implacable" commissioned at Devonport for Mediterranean.
- " " H.M.S. "Fox" commissioned at Portsmouth for East Indies.
- 11th (W.) Lord Methuen drove Delarey from a strong position in the Great Maries Valley with heavy loss.
- 12th (Th.) T. Kruger, son of the ex-President of the Transvaal, and Captain Ferreira, surrendered to the British.
- 14th (Sat.) Mr. McKinley, President of the United States, died from the effects of his wound, and Colonel Roosevelt took the oath as President.

- 16th (M.) H.I.M. the Emperor of Germany reviewed 50,000 German troops at Dantzie.
- 17th (T.) H.M.S. "Iphigenia" commissioned for relief service at Portsmouth.
 " " H.M.S. "Amphitrite" commissioned for relief service at Chatham.
 " " Loss of French torpedo-boat No. 124 by collision with No. 139 off Corsica.
- 18th (W.) A small patrol of the Grenadier Guards was ambushed in Cape Colony by the Boers.
- 19th (Th.) Loss of torpedo-boat destroyer "Cobra" in North Sea with 67 officers and men.
 " " H.M.S. "Centurion" paid off at Portsmouth.
 " " Three Mounted Infantry Companies and 3 guns, under Major Gough, were ambushed by the Boers near De Jager's Drift, with heavy British loss.
 " " T.I.M. the Emperor and Empress of Russia witnessed French Army Manœuvres at Rheims.
- 20th (F.) Lord Kitchener reported that 1 company of Mounted Infantry and 2 guns of U Battalion R.H.A. were captured by the Boers at Vlakkfontein.
 " " The 6th Battalion Lancashire Fusiliers (Militia) left Cape Town for England in the "Victorian."
 " " The 3rd Battalion Royal Garrison Regiment left Southampton for Malta in the "Assaye."
 " " Kritzingen surprised and attacked the camp of Lovat's Scouts at night, but were driven off, after inflicting and receiving heavy loss.
- 21st (Sat.) H.R.H. the Duke of Cornwall and York unveiled a statue of Queen Victoria, and presented some Canadian Volunteers with South African war medals at Ottawa.
 " " Commandant General Louis Botha invaded Natal with 1,500 Boers.
 " " T.I.M. the Emperor and Empress of Russia witnessed a review of French troops at Betheny.
- 22nd (S.) H.M.S. "Resolution" arrived at Spithead from Channel Squadron to pay off.
- 25th (W.) Ten Boer leaders, captured since the 15th inst., were banished from South Africa.
- 27th (F.) Lord Kitchener reported that a Boer attack on forts on the Zulu border had been repulsed, and also that an officer had been murdered by the Boers under the white flag.
- 28th (Sat.) H.M.S. "Amphitrite" and "Iphigenia" left with relief crews for Malta.
 " " The 3rd Battalion Royal Garrison Regiment arrived at Malta from Southampton in the "Assaye."
- 29th (S.) H.M.S. "Implacable" left for Mediterranean.
 " " The 5th Battalion Royal Munster Fusiliers (Militia) left Malta for Ireland in the "Assaye."
- 30th (M.) Delarey and Kemp, with 1,500 Boers, attacked Colonel Kekewich's camp at Moedwill, but were repulsed with heavy loss. British casualties amounted to 55 killed and 140 wounded.

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval*. Buenos Aires: July and August, 1901.—“Servo-Motors” (*continued*). “Torpedo-Discharges in Ships of War.” “The Hierarchy among Naval Officers.” “Naval and Military Power.” “The French Military Manœuvres.” “Military Justice.” “Wireless Telegraphy.” “Naval Notes.”

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens*. No. 10. Pola: October, 1901.—“Tactical Lessons from Navigation.” “The French Naval Manœuvres of 1901.” “The French Naval Estimates for 1902.” “Foreign Naval Notes.”

BRAZIL.—*Revista Marítima Brasileira*. Rio de Janeiro: July, 1901.—“Yachting and Rowing Clubs in Brazil.” “On the Maritime Inscription.” “The Navy before Federation.” “The Sailing Fleet.” “The 3rd July, 1895.” “The Range of Modern Guns.” “Naval Notes.”

FRANCE.—*Revue Maritime*. Paris: September, 1901.—Has not been received.

Le Yacht. Paris: 7th September, 1901.—“The English Naval Manœuvres of 1901.” “Yachting Notes.” “The French Cup.” “A Rapid Steam-Launch with Quadruple Expansion Engines.” 14th September.—“Auxiliary Ships in a Fleet.” “Yachting Notes.” “The Destroyer ‘Cassini.’” “The Mercantile Marine: French and Foreign.” “Automobile Boats on Rivers and the Open Sea.” 21st September.—“The Question of Submarines.” “Yachting Notes.” “The New Transatlantic Mail-Steamer ‘Savoie.’” “Automobile Boats on Rivers and the Open Sea” (*concluded*). 28th September.—“Disembarkation.” “Yachting Notes.” “The Naval Review at Dunkirk before the Russian Sovereigns.” “The America Cup.” “Sea-going Cargo-Lighters.”

Le Moniteur de la Flotte. Paris: 7th September, 1901.—“Corsair Warfare.” “Practising Landings in Force.” “The Tsar in France.” “The Turco-French Quarrel.” 21st September.—“The Submersibles.” “The Tsar in France.” “Across the Mediterranean in a Balloon.” 28th September.—“The English and German Expeditions to the South Pole.” “The Towing of Submarines.” “Across the Mediterranean in a Balloon.” “The Tsar in France.” “The Return of General Voyron.” “The Pollock Prize.”

La Marine Française. Paris: 15th August, 1901.—“The Turco-French Quarrel and the Navy.” “The English Naval Manœuvres of 1901.” “Notes from Day to Day.” “Foreign Naval Notes.” “Iceland Fisheries.” “The Mercantile Marine.”

GERMANY.—*Marine Rundschau*. Berlin: October, 1901.—“The Indirect Methods of Naval War in the Struggle between England and the First French Empire.” “The French Naval Manœuvres of 1901.” “The Combined Land and Sea Manœuvres in Russia.” “The Training-ships of the Future.” “The Prospects of a Free Use of Electricity in War-ships.” “The Russian Coast Territories in China.” “The Forerunners of the Naval Schools.” “Foreign Naval Notes.”

ITALY.—*Rivista Marittima*. Rome: October, 1901.—Has not been received.

PORTUGAL.—*Revista Portuguesa, Colonial e Maritima*. Lisbon: August, 1901.—“Studies on Emigration” (*continued*). “Colonial Agriculture” (*continued*). “The Planting of the India-rubber Tree in the Arnene Region.” “The Use of Colonies.” “Foreign Naval Notes.”

SPAIN.—*Revista General de Marina*.—Madrid: October, 1901.—“A Problem of Submarine Navigation.” “On Naval Matters.” “The New Protected Cruisers of the U.S. Navy of the ‘Charleston’ type.” “The English Naval Manœuvres of 1901.” “The Teachings of the Last French Naval Manœuvres.” “Some Suggestions on Coast Defences.” “The Chilean Naval College and Naval School of Gunnery: A Criticism of the Work.” “Country and Sea-Power.” “The Cleptoscope in Submarine Boats.” “Chili and Argentina.”

UNITED STATES.—*Journal of the American Society of Naval Engineers*. Washington: August, 1901.—“Contract Trial of the U.S. First-class Battle-ship ‘Illinois.’” “Contract Trials of the U.S. Torpedo-boats ‘Schubrick’ and ‘Thornton.’” “Mercantile Auxiliaries.” “Conversion and Re-Armament of Ships on the Active List.” “The Grounding of the German Battle-ship ‘Kaiser Friedrich III.’” “U.S. Torpedo-boats ‘Bagley,’ ‘Barney,’ and ‘Biddle.’” “On the Limits of the Economical Speed of Ships.” “The Edison Storage Battery.” “The Influence of Copper on Steel Rails and Plates.” “Triple-Screw Ships.” “Foreign Naval Notes.”

MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung*. Vienna: 3rd September, 1901.—“Manœuvres and the Increase in Marches.” “Disposal of Wounded in the Theatre of War after heavy Actions and Battles.” 11th September.—“Our Grand Manœuvres.” “Dearth of Officers in the Cavalry.” “Attack Manœuvres under Service Conditions at Veszprim.” 19th September.—“The Gun Question.” “Manœuvres against a Skeleton Enemy.” “The Grand Manœuvres in South-West Hungary.” “The Austrian Troops in China.” “The Launch of the ‘Arpad.’” 27th September.—“After the Manœuvres.” “A German East Asiatic Battalion at Vienna.” “The Manœuvres in South-West Hungary.”

Organ der Militär-wissenschaftlichen Vereine. Vienna: Vol. LXIII., Part 2.—“Contribution to the Question of Extensive Artillery Patrols.” “Development of Military Ballooning.” “Hopes and Wishes regarding the New Austrian Infantry Drill Regulations.”

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: September, 1901.—“Plane Shooting of Fortress Artillery by means of the Pointing Apparatus.” “Gunpowder Signals for Railways.” “Portable Bridges for Field Railways, with Engine Traction.”

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires*. Brussels: 15th September, 1901.—“Diseases in War, by Dr. Knaak” (*continued*). “The New German Rifle, Model 1898” (with sketch). “The Anglo-Boer War” (*continued*). “Considerations on the Value of Ground in Modern War.” 30th September.—“Diseases in War, by Dr. Knaak” (*concluded*). “The Anglo-Boer War” (*continued*). “Military Pigeons.”

FRANCE.—*Revue du Cercle Militaire*. Paris: 7th September, 1901.—“Two Sieges of Belfort.” “Transport of Armies in the French Campaigns.” “The English Naval Manœuvres.” 14th September.—“French Expansion in Central Africa” (1 sketch, *continued*). “Two Sieges of Belfort” (*continued*). “A Russian Opinion of von Moltke.” 21st September.—“French Expansion in Central Africa” (1 sketch, *continued*). “Two Sieges of Belfort” (*continued*). “The South African War: Report of the American Attaché with the British Forces.” 28th September.—“French Expansion in Central Africa” (*continued*). “Things of Former Days.” “Two Sieges of Belfort” (*concluded*). “Russian Soldiers Prisoners with the Chinese.”

Le Spectateur Militaire. Paris: 1st September, 1901.—"The Campaign of 1809" (1 sketch, *continued*). "Should the Napoleonic *Ordre de Bataille* be Decentralised?" (*concluded*). "The Ancient Corps of Marines" (*continued*). "Round Kita" (*continued*). "The Campaign of 1813" (1 sketch, *continued*). 15th September.—"The Campaign of 1809" (2 sketches, *continued*). "The Ancient Corps of Marines" (*continued*). "Round Kita" (2 sketches, *continued*). "The Campaign of 1813" (1 sketch, *continued*).

Revue Militaire. Paris: September, 1901.—"The 16th August, 1870" (*continued*). "Studies of the South African War of 1899-1900" (*continued*). "The German War Budget for 1901." "Military Events in China, 1900-1901" (*continued*). "The German Imperial Manœuvres of 1900" (*concluded*).

Revue d'Histoire. Paris: September, 1901.—"Campaign of 1793 in Alsace and in the Palatinate" (*continued*). "The Naval War of 1805" (*continued*). "The War of 1870-71."

Revue des Sciences Militaires. Paris: September, 1901.—"Napoleonic Maxims" (*concluded*). "The New Infantry Drill Regulations." "The Great Frederick" (*continued*). "Choice and Establishment of Small Arms Musketry Ranges." "Recruiting of Officers." "A German Infantry Brigade in Action" (*continued*). "Military Landscape." "Manœuvre Regulations."

Revue d'Artillerie. Paris: September, 1901.—"Study of Ground by the Aid of a Telemetric Apparatus." "Notes on the Wounding Effects of New Arms" (*concluded*). "Artillery Horses and Wagons" (*continued*).

Revue du Génie Militaire. Paris: September, 1901.—"Account of the Rescue of a Well-Sinker at La Coudraye." "Reflections on the Ventilation of Inhabited Localities." "Analysis of and Extracts from Vauban's Correspondence" (*continued*).

Revue de Cavalerie. Paris: September, 1901.—"Cavalry Generals—D'Ornano." "Initiative in Subordinates." "The German Cavalry at the Grand Manœuvres of 1900" (*concluded*). "Jeanne d'Arc as a Horsewoman."

Revue de l'Intendance Militaire. Paris, September, 1901.—"Practical Information on Plants fit for Fodder" (*concluded*). "Sinking and Draining of Grain in the Huat Granaries." "Contribution to the Study of the Industrial Chemistry of Flour." "Commercial Law" (*continued*). "Principal French Colonial Foodstuffs—Indo-China." "Hydrology of the Sahara." "Extracts from recent Publications regarding Military Administration."

GERMANY. — *Militär-Wochenblatt.* Berlin: 4th September, 1901. — "The Transport of Troops and Military Matériel between Irkutsk and Strictensk in the Summer and Autumn of 1900" (1 sketch). "This Year's English Naval Manœuvres." "The Battle in Tentoburg Woods." 7th September.—"Proposal for the Group-firing in Battle Formation and Shooting Considerations, with a view to Emulation in Infantry Companies." "Naval Operations." "Hartmann's Cavalry Division at Gravelotte, and the Memoirs of General von Fransecky." 8th September.—"Motor-wagons in England." "Re-organisation of the American Army." "The Regulations for Home Defence, by the Prince of Anhalt in the Thirty Years' War." "Our Officers on Furlough, from a French Point of View." "The Armed Strength of Mexico." 14th September.—"Our Medical Service in Face of the Enemy." "The New Swedish Defence and Army Organisation." 18th September.—"Draft of a New Drill Regulation for the French Infantry." "Columbia and Venezuela." "Correspondence from Buenos Ayres." 21st September.—"On the History of the Organisation of the Bavarian Artillery." "Draft of a New Drill Regulation for the French Infantry" (*continued*). "A Balloon Voyage over the Mediterranean" (with 2 sketches). 25th September.—"Draft of a New Drill Regulation for the French Infantry" (*continued*). "Sporting Rifle Practice" (2 sketches). 28th September.—"On the Service Jubilee of Infantry General von Lentze, commanding the XVIIth Army Corps." "Draft of a New Drill Regulation for the French Infantry."

Internationale Revue über die gesamten Armeen und Flotten. Dresden : September, 1901.—"Military and Naval News from Argentine, Austria-Hungary, Chili, France, Germany, Great Britain, Italy, Japan, Russia, Switzerland, and Turkey." *Supplement No. 21.*—"The English Field Gun Question." *French Supplement No. 30.*—"The New English Q.F. Field Guns." "Sadowa." "China—the Battle of Langfang, on the Afternoon of 18th June, 1900." "The New German Cruiser 'Zähringen.'" "Military Reforms in Sweden." "The Education and Scientific Instruction of German Naval Officers."

Neue Militärische Blätter. Berlin : 1st August, 1901.—"About the Formation of a Corps of Colonial Troops." "Field Guns with Curved Fire in some Armies." "Instructions for the French Manœuvres of 1901." 15th August.—"The Battle of Wörth." "The Origin of our Navy and the Monarchy." "The French Corps of Officers." "The French Infantry Machine Gun."

1st and 15th September have not yet been received.

ITALY.—*Rivista di Artiglieria e Genio.* Rome : September, 1901.—Has not been received.

Rivista Militare Italiana. Rome : September, 1901.—"The Grand Manœuvres." "General Pianelli." "A Forgotten Hero." "The Record of the 20th September, 1870." "The Moral Question in History, the Nation, and the Army" (*concluded*). "Requisitions in an Enemy's Country" (*continued*). "The Role of Murat in the Italian Campaign of 1814" (*concluded*). "Foreign Military Notes."

PORTUGAL.—*Revista de Engenharia Militar.* Lisbon : August, 1901.—"The Engineers in the German Army." "The Walls of Lisbon" (*continued*). "Experiments with Wireless Telegraphy." "Report of the Commission entrusted with Studying the Plan for a Railway to the South of the Tagus" (*continued*).

Revista de Infanteria. Lisbon : October, 1901.—"The Employment of the Four Arms in the Field." "Economic Organisation for Providing Provisions for Soldiers' Messes." "Practical Schools and Complementary Instruction." "In South Africa." "Military Bicycling." "The Manœuvres." "Foreign Military Notes."

RUSSIA.—*Voiennyi Sbornik.*—August and September have not yet been received.

SPAIN.—*Memorial de Ingenieros del Ejército.* Madrid : September, 1901.—Has not been received.

Revista Técnica de Infanteria y Caballeria. Madrid : 1st September, 1901.—"Paper Work in the Army and the Council of War." "Reflections on the Last Imperial Manœuvres." "Spain and the Mediterranean Problems." "The Directing of Fire in Battle." "The Instruction of Cavalry in Peace" (*continued*). "Something about Powders" (*continued*). "On the Responsibilities of the Anglo-Boer War." 15th September : "The Grand General Staff." "The Age and Promotion of Spanish Officers." "Historical Traditions in the Austrian Army." "The Re-organisation of the English Army." "The Directing of Fire in Battle" (*continued*). "The Necessity of Extending in the Army Instruction in Arabic." "Spain and the Mediterranean Problems" (*continued*).

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne : September, 1901.—"The Neuchâtel Guards Rifle Battalion." "The Field Howitzer." "New Military Law in the United States." "Throwing a Temporary Bridge across the Aar at Brugg."

UNITED STATES.—*Journal of the Military Service Institution.* Governor's Island, New York : September, 1901.—"Military Topography." "Some Points of Tactics." "Supply and Distribution." "Field Service Instruction." "French Autumn Manœuvres." "Translations and Reprints." "Comment and Criticism." "Reviews."

NOTICES OF BOOKS.

Pretoria from Within during the War. By H. J. BATTS. 8vo. London: J. Shaw & Co., 1901.

This exceedingly interesting and instructive work will be read by all those who desire to form a correct estimate of the exact position occupied by Mr. Kruger and his advisers in regard to the initial causes of the war. The manuscript was read by Lord Roberts at Pretoria, and gave him "great pleasure," which is alone a sufficient recommendation of its undoubted merits. It must, however, be admitted that, although Mr. Batts is always very fair in his treatment of the Boers, it is evident that he is inclined to favour his own side—our side—on controversial matters. He gives a flat denial to the charges made against the imprisoned British officers by Mr. R. H. Davis, which were published in *Scribner's*; although at the same time it is not improbable that some of them were often unable to restrain themselves when subjected to the overbearing insolence of some of the Boer guards. And it will be remembered that the majority of these guards were drawn from the old men, who were generally extreme haters of everything British. With regard to the insults said to have been offered to the Pretoria girls by the officers confined in the Model School, it is more than probable that the ladies were as much at fault as the unhappy subalterns, who were suffering from *ennui*. The protest evidently was made by the mothers, not by the girls. Mr. Stead strongly accentuated the situation when he shuddered to think of "the honour of thousands of Dutch women" being consigned to the tender mercies of such men. Mr. Stead has only to seek for further information in the refugee Boer camps for his answer. The writer can vouch for the fact that, during the hundred days' siege of Pretoria in 1880-81, although the women and children were housed within a few yards of the soldiery, not a single complaint was made against either officers or men; indeed, the majority of the ladies left the camp with regret at the end of the siege. The same may be said of the conduct of the soldiery during the siege of Ladysmith.

Upon the causes of the war Mr. Batts is very emphatic, and he seems to have had an excellent opportunity for forming an accurate conclusion. He attributes this war almost entirely to "Paul Kruger's unresting ambition, his ungovernable lust of power, his determination to be the absolute autocrat of the Transvaal unhampered by any outside restrictions whatever." This opinion is supported by an interesting account of the last sitting of the Volksraad, which Kruger vainly attempted to persuade into disposing of the underground mining rights to some speculators for a comparatively small sum of money, his services having been secured by the promise of largess. "Paul Kruger was a study while the debate was on. He could never brook opposition, and this time he found it very strong. Willem van Niekerk, a Progressive, was speaking very deliberately. He was frequently shouted at by the President, but would not be shouted down. He continued his address, pointing out the wrong of the thing, and appealing to the Raad not to grant the Government's request." The President then made a long harangue, but the Raad was sullen and determined, and the Bill was thrown out. The last words of Kruger on leaving the House were, "I will do as I like." On the following day these rights were advertised for sale, but the speculators no doubt thought it advisable to keep their money in their own pockets. Mr. Batts, who is a Baptist clergyman, gives it as his opinion that the Boer clergy had much to do with the outbreak of war:—"The clergy are the principal teachers of politics as well as of religion, and it is difficult to say which has the larger place in their ministry. They certainly encouraged the people in their hatred of the English people and Government, and they claimed quite a monopoly of divine favour as they went forth against what they believed to be their lifelong foe." The pulpit in the Transvaal and Orange Free State had for years

post been made the rostrum whence the narrowest political opinions were inculcated amongst the laity, who greedily accepted such pronouncements as Gospel truth, which is not surprising when it is remembered that the teaching was usually in accord with their sentiments, and that they were generally so steeped in ignorance that they were ready to believe almost anything. The same may be said of the pulpits of the Dutch communities of the Cape Colony and Natal, with some modifications. Indeed, the writer very well remembers a Dutch predicant, who was exceedingly kind and civil to him during his stay in the Colony, but who denounced in the strongest terms our occupation of any part of South Africa. We strongly recommend the perusal of this book to all those interested in the South African question.

First on the Antarctic Continent: being an Account of the British Antarctic Expedition, 1898-1900. By C. E. BORCHGREVINK, F.R.G.S., Commander of the Expedition. 8vo. London: George Newnes, 1901.

This book has been published at a very opportune moment, as another expedition, bound for the same inhospitable shores, has only recently been fitted out and despatched to the Antarctic. There is no doubt that the valuable information given, and the experience gained, will be of the very greatest assistance to the new expedition, and will tend to minimise the unavoidable hardships to which such explorers must inevitably be exposed. The majority of our readers will be aware the Antarctic ship "Discovery," under the command of Commander R. F. Scott, M.V.O., R.N., with a picked crew of officers and men, sailed from these shores on the 6th August last, on a voyage of scientific research and discovery. Before her final departure for those icy regions His Majesty King Edward inspected both ship and crew, addressing a few words of encouragement and wishing them a safe return to England. The ship reached Cape Town on the 3rd October, and is proceeding without delay to Lyttleton, in New Zealand, where its outfit will be completed before sailing for South Victoria land. As only twenty Siberian dogs were to have been embarked at the Cape, it is more than probable that the dogs landed by Mr. Borchgrevink on Native Island, off the southern end of the South Island, will be utilised by the expedition, as they will have already had experience of the rigours of one Antarctic winter, and will be better able to endure another. The consideration of some of the circumstances connected with a winter's sojourn in the Antarctic will be of more interest to our readers at this moment in view of the fact that, in addition to our own new expedition, two other ships, a German and a Swedish, are also both leaving to join in the hazardous work of exploration in the Antarctic Ocean.

In his book Mr. Borchgrevink gives us ample information in regard to a winter's sojourn in the Antarctic, and the positive hardships and dangers that are inseparable from such an undertaking. They are due mainly to the extreme cold, the violence of the winds, the formation of enormous masses of ice on both land and sea, followed by thaws and rains which let loose huge masses of ice, snow, and moraine, to work destruction on all that impedes their downward course—added to which is the impossibility of supplementing any stock of food from any local resources, particularly during the dark and tedious winter season. During the summer season, Mr. Borchgrevink tells us that they were forced to content themselves with seal and penguin flesh as a substitute for fresh provisions, and as a change from the perpetual tinned meats, which had become very distasteful. Fish was also caught throughout the year, and were found to be excellent eating. Judging from the menus provided at Camp Ridley during the long and tedious winter, it does not appear that any vast amount of thought was expended in providing an extensive assortment of tinned food. That oversight has been wisely foreseen in the provisioning of the "Discovery."

The flesh of the penguin is stated to have been "rather good, especially as we prepared it in the main camp, where we first boiled it, whereby it lost a good deal of the blubbery taste, and afterwards roasted it." During the severe winter season the penguins practically disappeared, and did not return before the end of October, when

their nesting was begun. Seals could, however, be procured throughout the winter, and were sometimes found frozen to death, but this did not render them unfit as food for the dogs.

Under no circumstances is the dog the friend of man so much as he is in the Arctic or Antarctic; upon this willing animal has the explorer to depend for his food, his fire, and his covering, when he makes his perilous journeys into unknown regions covered with ice and snow. Some ninety Greenland and Siberian dogs were embarked on board the "Southern Cross." Several of these died from the effects of the equatorial heat on the passage to the Cape. On their arrival at Cape Adare the dogs were allowed to shift for themselves, and the unfortunate seals and penguins must have suffered proportionately in satisfying the cravings of these insatiable brutes. Like their masters, they soon tired of seal meat and blubber, and were wont to regale themselves with one of their own kind. Mr. Borchgrevink tells us that usually one of the finest dogs was selected to be hunted down and devoured, and that no interference on their part could avert the catastrophe. During the extreme cold one or more kennels or caves were prepared for the dogs, but they were frequently frost-bitten, without any serious after consequences. On one of the journeys made we are told that "the dogs were completely snowed down and frozen fast to the ice. Some of them had eaten the straps of their harness to free themselves, but were still unable to move on account of being frozen to the ice." The temperature is given on that occasion as 32° in the morning.

We recommend the perusal of this book to those interested both in science and adventure. It is admirably illustrated from photographs taken on the spot, and has excellent explanatory maps. The work should be read by all those who are interested in the expedition now being undertaken in the Antarctic seas, as well as by those who take an interest in such researches.

PRINCIPAL ADDITIONS TO LIBRARY DURING SEPTEMBER, 1901.

Questions and Answers for Cavalry Non-commissioned Officers. By Lieut.-Colonel CREOLE-WYNDHAM, C.B. 8vo. Dublin, 1901.

Report of the United States National Museum for 1897. Smithsonian Institution. Part II. 8vo. Washington, 1901.

Report of the United States National Museum for 1899. Smithsonian Institution. 8vo. Washington, 1901.

Annual Report of the Board of Regents for 1899. Smithsonian Institution. 8vo. Washington, 1901.

Die Artillerieangriffe auf Paris und Schlussbetrachtungen über den Festungskrieg im Kriege von 1870-71. By H. VON MÜLLER. 8vo. Berlin, 1901.

War Notes. The Diary of Colonel de Villebois-Mareuil from 24th November, 1899, to 7th March, 1900. Translated by Mr. F. LEES. Crown 8vo. London, 1901.

A Retrospect of the South African War. By Lieut.-Colonel E. S. MAY. 8vo. London, 1901.

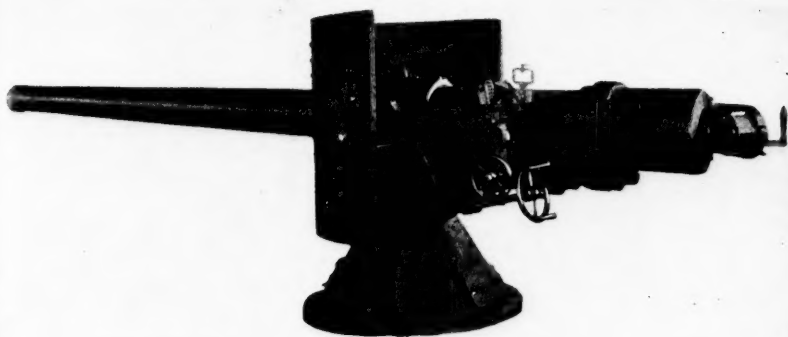
Dictionary of National Biography. Supplementary Vols. I. and II. Edited by SIDNEY LEE. 8vo. London, 1901.

Through Rhodesia with the Sharpshooters. By RENNIE STEVENSON. Crown 8vo. Price 3s. 6d. London, 1901.

To the South Polar Regions. By LOUIS BERNACCHI. 8vo. Price 12s. London, 1901.

The Last of the Masai. By SIDNEY LANGFORD HINDE and HILDEGARDE HINDE. Imp. 8vo. London, 1901.

NEW 5-INCH SEGMENTAL WIRE-WOUND GUN FOR THE UNITED STATES ARMY.



The Finished Gun on a Rapid-fire Pedestal Mount.



View at Muzzle showing Curved Sheets in Assembling Ring before Liner is Inserted.



Section through Sheet-Steel Tube, showing Liner and Assembling Clamp.

(For description see *Military Notes*.)